

OPIOID AND OTHER SUBSTANCE USE DISODERS

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What are addictive substances?

- ▶ Any substance which when taken has
 - ▶ an ability to change the person's **consciousness, thinking, mood, behaviour** and **motor functions**
 - ▶ Leading to take the substance repeatedly
- (World Health Organisation, 1992)*
- ▶ ...Also called as psychoactive substances
 - ▶ Layman term: “Drugs”

Why are certain substances addictive?

Intake of any substance – oral, inhalational, injecting



Enters the bloodstream



Acts on a specific body part, such as heart, lung, stomach, etc.

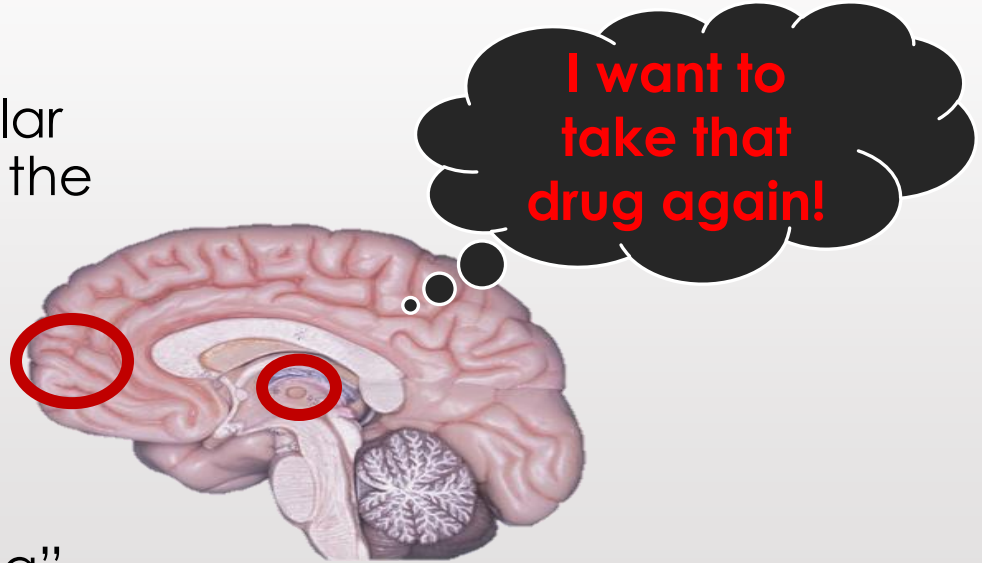
Addictive substances act on brain

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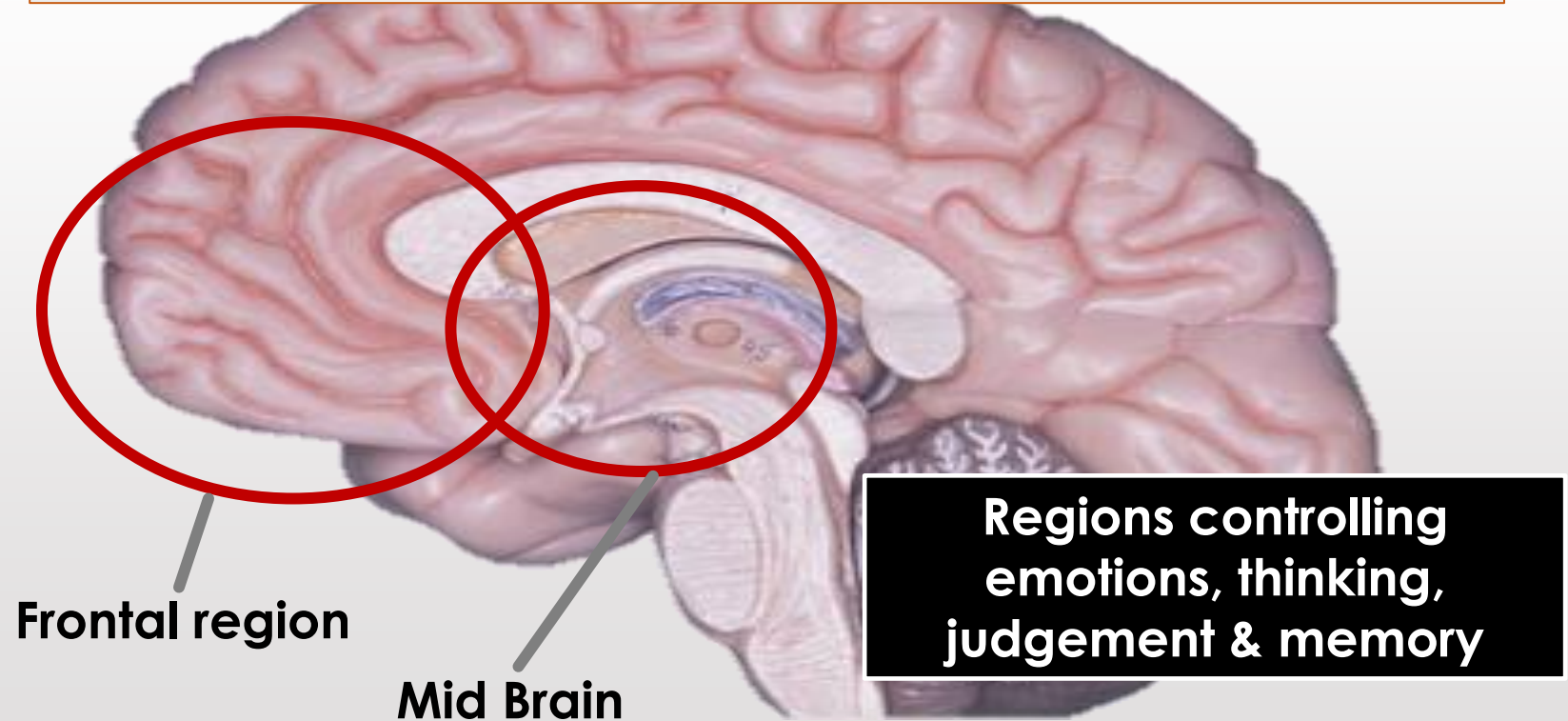
All substances acting on the brain are *not* addictive

Addictive substances primarily act on a particular area/group of neurons in the brain,

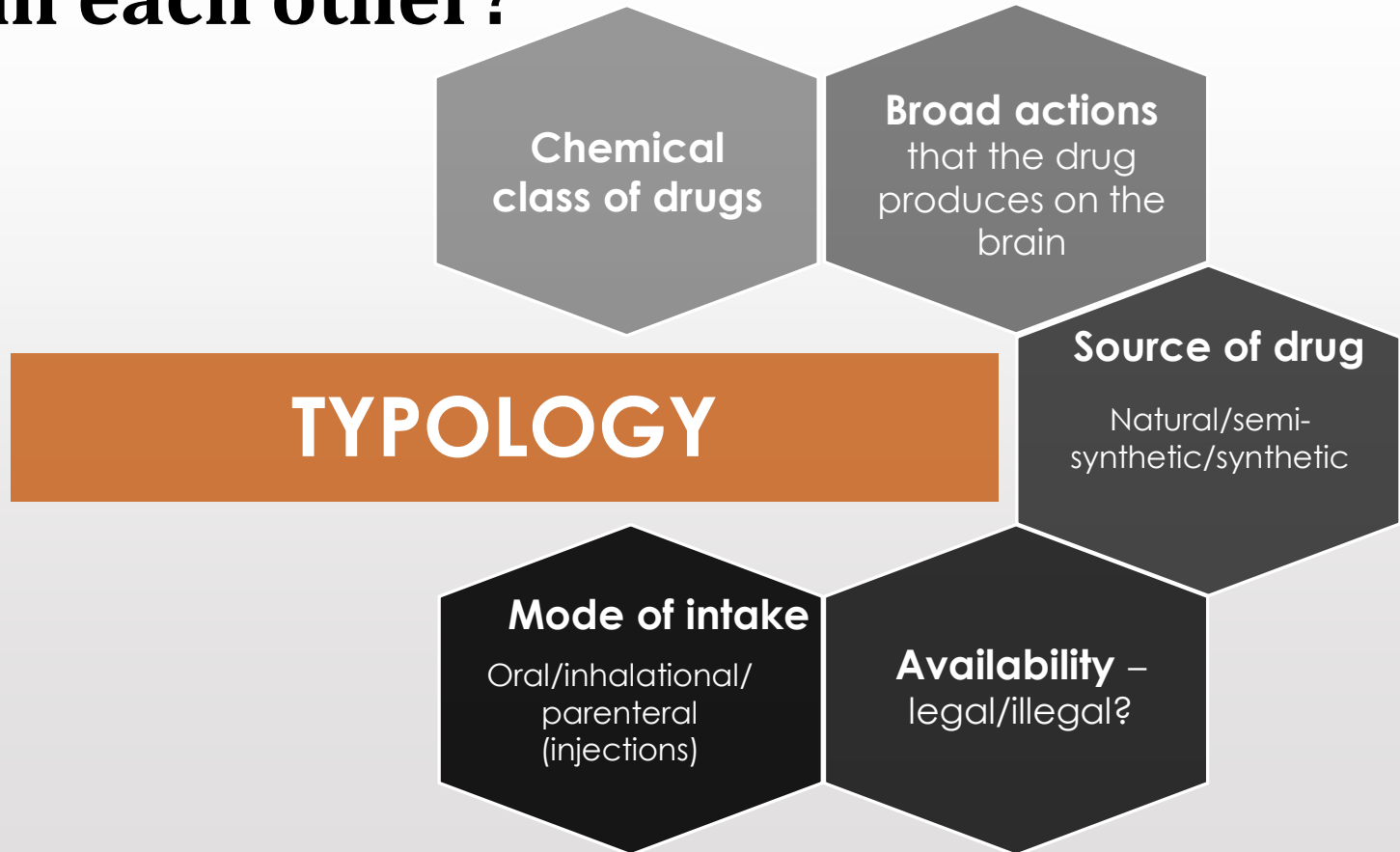
Leading the individual to repeatedly administer the addictive / psychoactive substance → “drug seeking” behaviour



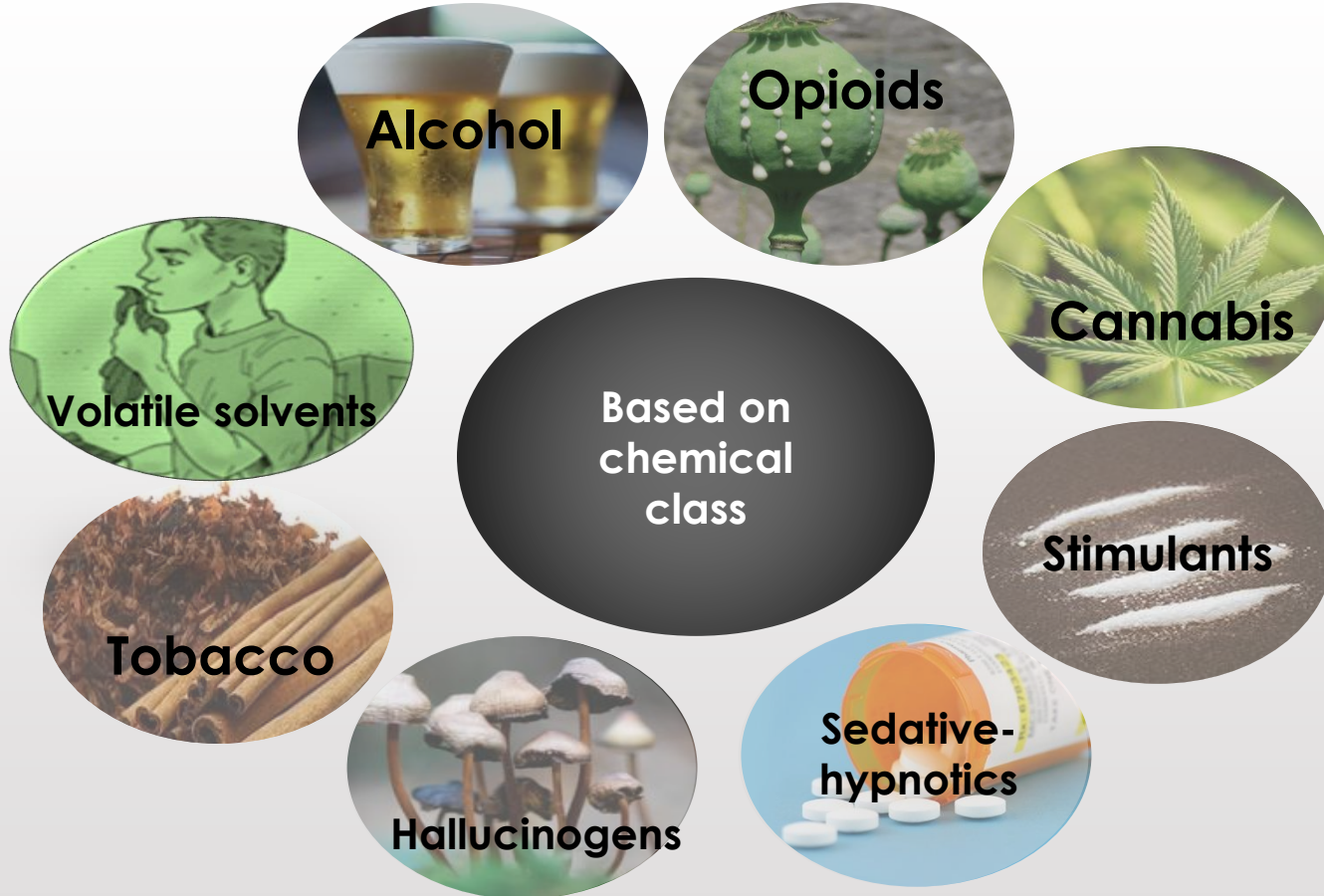
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How are addictive substances different from each other?



Typology - Chemical Class

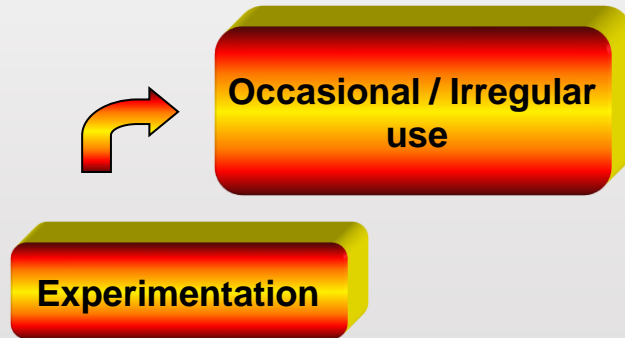


The usual drug-use 'career'

- ▶ Depends upon
 - ▶ Availability
 - ▶ Peer pressure
 - ▶ Socio-cultural norms
 - ▶ Psychological factors

Experimentation

The usual drug-use 'career'



- ▶ Depends upon
 - ▶ Initial experiences
 - ▶ Peer pressure

Types of Harms Associated with Use of Addictive Substances





Drug related problems: Physical

- ▶ Loss of appetite and weight
- ▶ Weakness
- ▶ Bodyaches
- ▶ Respiratory problems (breathlessness, cough, etc.)
- ▶ Injury due to road traffic accidents
- ▶ Overdose
- ▶ Injection related complications like abscess / ulcer / blocked veins



Drug related Problems: Psychological

- ▶ Stress
- ▶ Demoralization / Hopelessness
- ▶ Depression
- ▶ Anxiety



Drug related problems: Familial-Social

- Fights within family
- Arguments with neighbours
- Separation / divorce with wife
- Loss of family support
- Disowned by family / homelessness
- Loss of reputation / standing within the society



Drug related problems: Occupational

- ▶ Poor grades in studies
- ▶ Stopped studies (including school dropout)
- ▶ Irregular at job
- ▶ Frequent change of job
- ▶ Loss of Job
- ▶ Decreased work performance
- ▶ Doing menial labour despite having skill / education



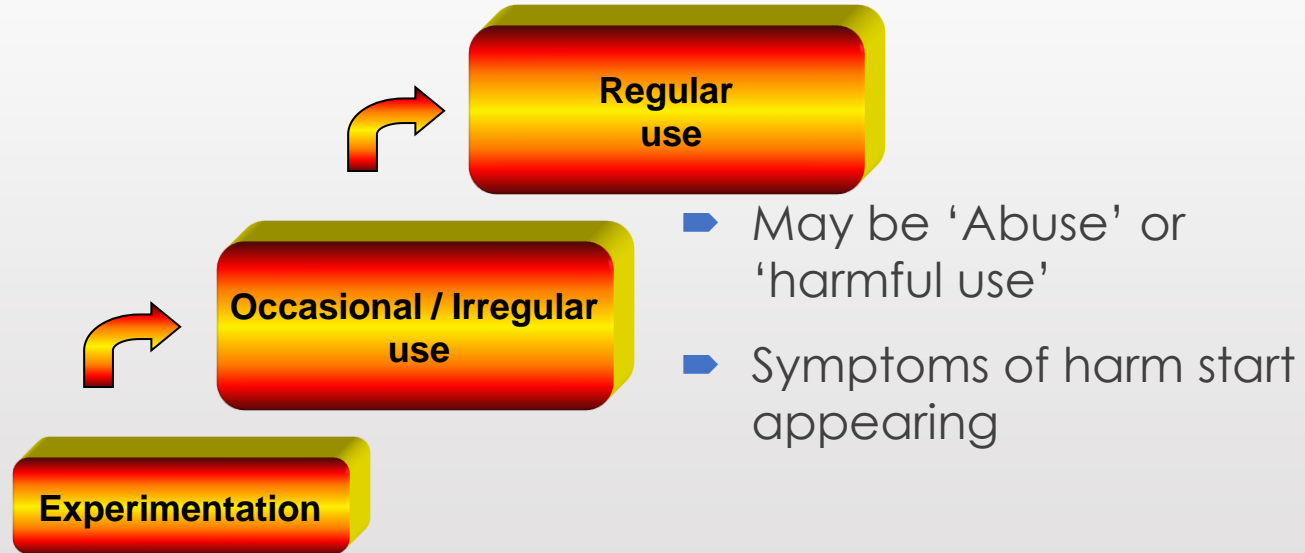
Drug related problems: Financial

- Difficulty in meeting expenditure on drugs from own legal earnings
- Difficulty in meeting daily living expenses from own legal earnings
- Borrowings / debt from others
- Financial dependence on family / friends
- Selling drugs to continue your own drug use
- Indulging in illegal activities other than drug selling

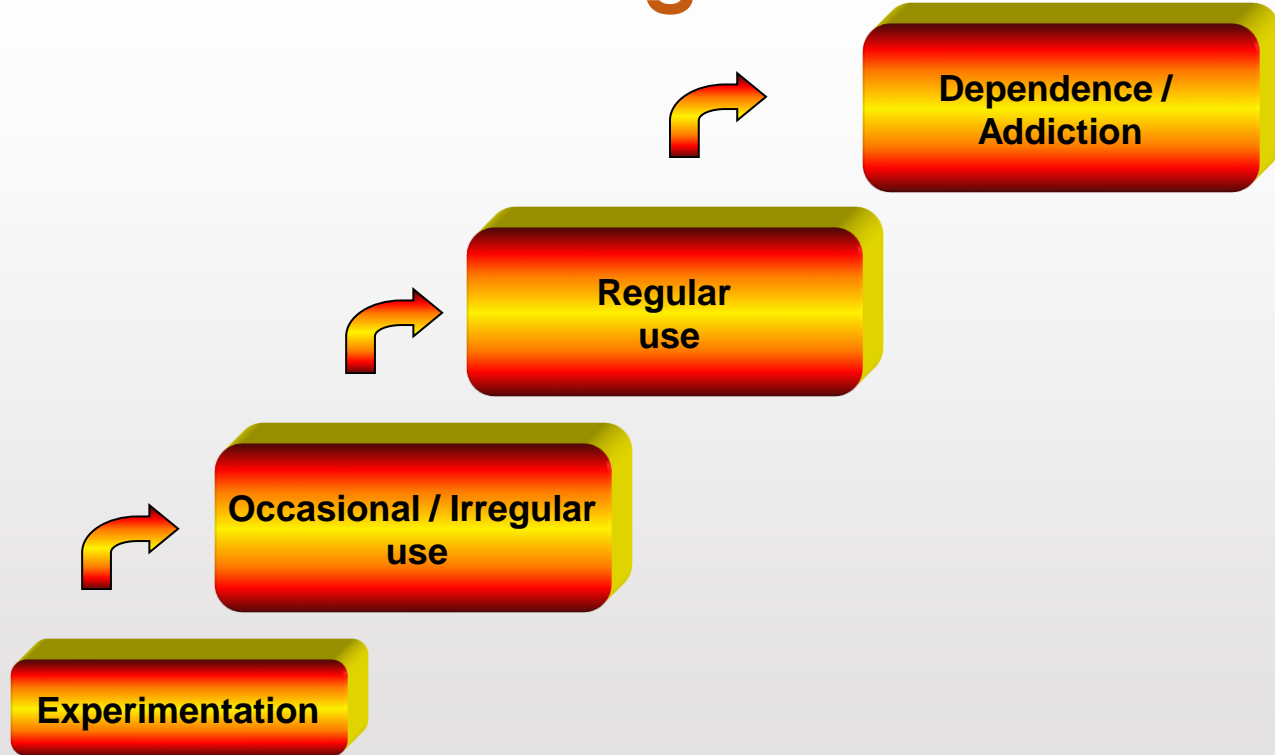
Drug related problem: Legal

- ▶ Caught by police while procuring / consuming drugs
- ▶ Resorted to illegal activities for drug use
 - ▶ Pickpocketing
 - ▶ Stealing
 - ▶ Gang activities
 - ▶ Selling / supplying drugs to other drug users
- ▶ Jailed under NDPS Act for possession / consumption / selling / supplying drugs
- ▶ Jailed due to other reasons

The usual drug-use 'career'

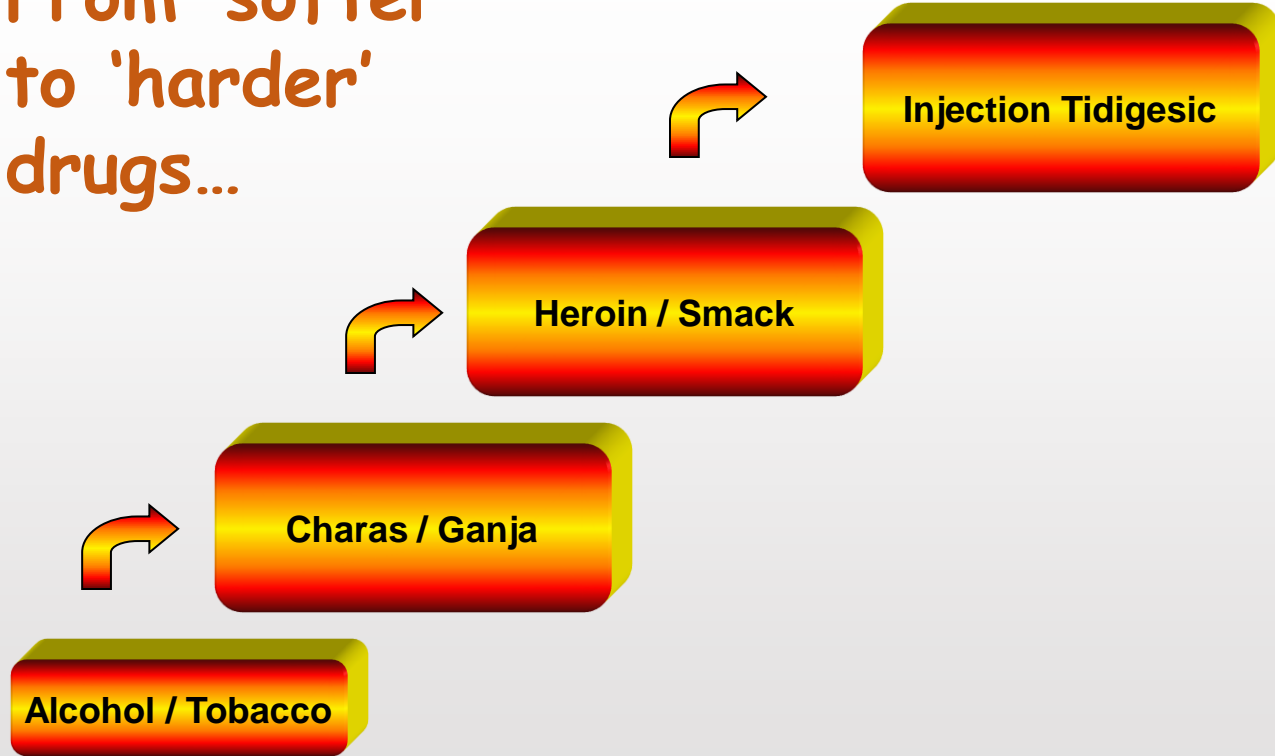


The usual drug-use 'career'

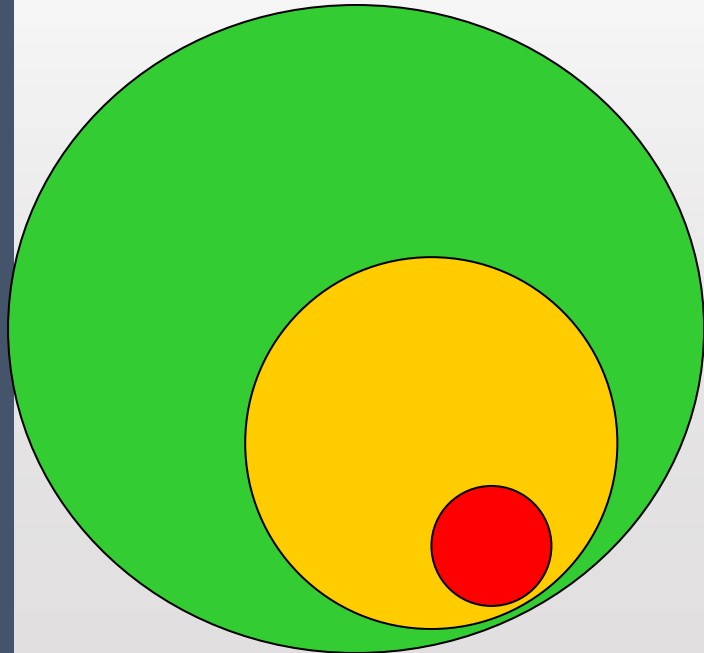
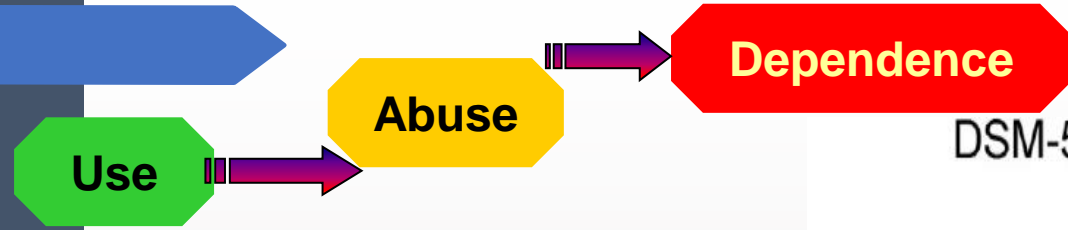




From 'softer'
to 'harder'
drugs...



Terminology



DSM-5 Criteria for Substance Use Disorder
(≥ 2 items in 12 months)

DSM-IV Abuse

1. Failure to fulfill responsibilities ✓
2. Use in physically hazardous situations ✓
3. Legal problems was in DSM-IV but it was replaced with Craving in DSM-5.
4. Social/interpersonal problems ✓

DSM-IV: Dependence

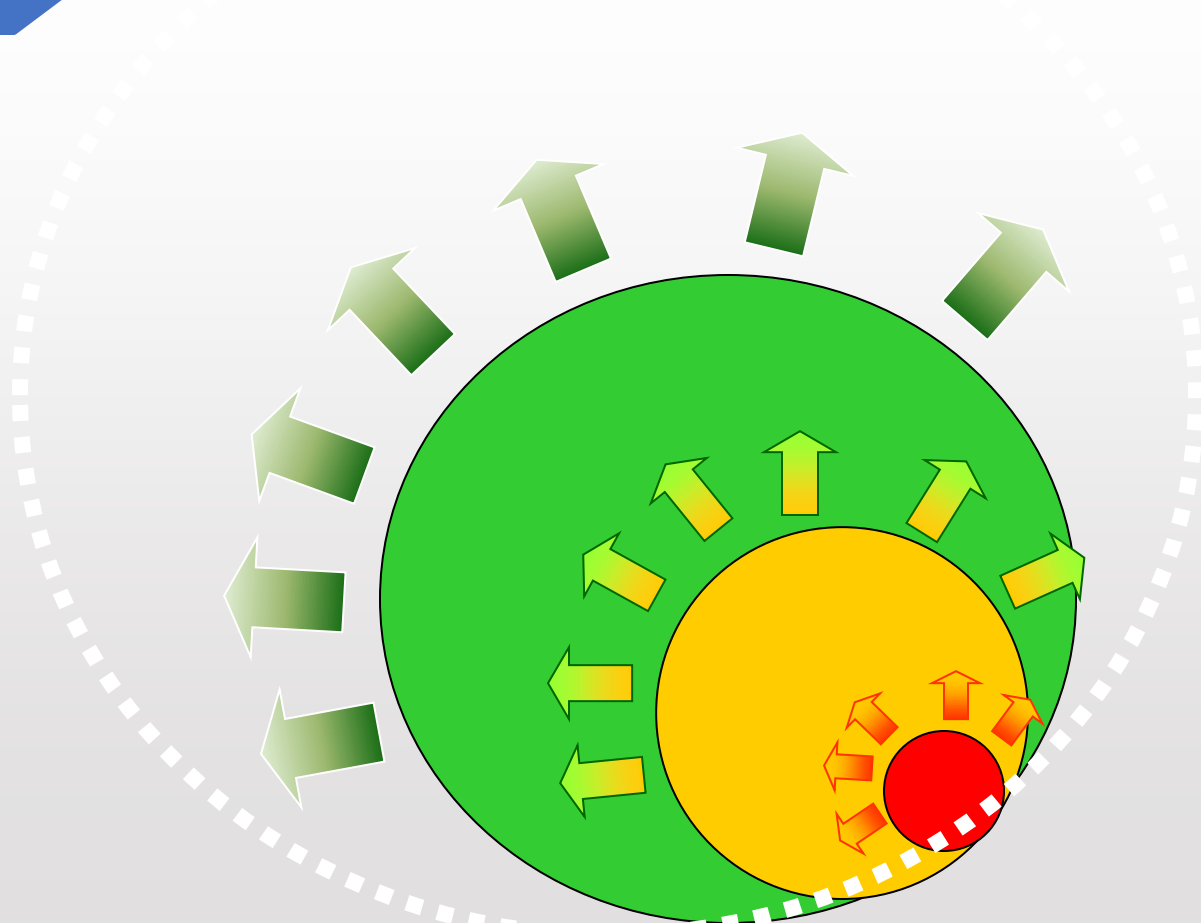
5. Use larger amts or longer than intended ✓
6. Cannot cut down ✓
7. \uparrow time spent to get, use, and recover ✓
8. Give up or \downarrow other important parts of life ✓
9. Ongoing use despite problems ✓
10. Tolerance ✓
11. Withdrawal ✓

Mild=2-3

Mod=4-5

Severe=6+

Purpose of intervention



Opioids

- ▶ Substances with opium like effects are called as opioids
- ▶ Opium derived from a naturally occurring plant: *papaver somniferum*
- ▶ *India is situated between the two largest illicit opium-producing regions of the world – “Golden Crescent” and “Golden Triangle,”*
- ▶ *India itself is one of the largest legal producers of opium.*
- ▶ *In the first and the only national survey till date on drug use in India, the prevalence of opioid use was found to be 0.7% of the general population among whom, around 22.3% were found to be dependent on opioids.*
- ▶ *India has about 4 million people who use opioids and around 1 million people who are opioid dependent*
- ▶ *A recent study reported that around 232,000 people were opioid dependent in Punjab alone.*
- ▶ *Thus, there is undoubtedly a sizable burden of opioid dependence in many parts of India.*





Opioids: Types

➤ Natural

- Morphine,
- Codeine
- Thebaine

➤ Semi-synthetic

- Heroin
(Diacetylmorphine)
- Buprenorphine
- Oxycodone,
hydromorphone

○ Synthetic

- Methadone
- Dextropropoxyphene
- Fentanyl
- Pethidine
- Pentazocine

Opioid types: Natural opiates

Opium (Afeem / Amal)



Poppy husk/straw (doda, bhukki)



**Impure Heroin:
Brown Sugar/ Smack**



Pure Heroin: 'No. 4', 'Chitta



Opioid types: pharmaceuticals

Cough syrups (contain Codeine, an opioid)



Oral tablets



Opioid types: pharmaceuticals

- **Buprenorphine**
(Tidigesic, Lupegesic, Bupegesic, Norphine, Sangesic, etc.)



- **Pentazocine**
(Fortwin, Zocine, etc.)





Opioids – effects

- ▶ Act on specific receptors in the body – opioid receptors
- ▶ Produce ‘Narcosis’: a state of stupor and dullness in the brain
- ▶ First use can be unpleasant: associated with nausea, vomiting, itching,
 - ▶ Repeated use: narcosis, ‘high’
- ▶ Has analgesic, euphorogenic and sedative properties

Opiate Withdrawal Timeline



Last Dose

Symptoms Begin

6-12 hours

Short-Acting Opiates



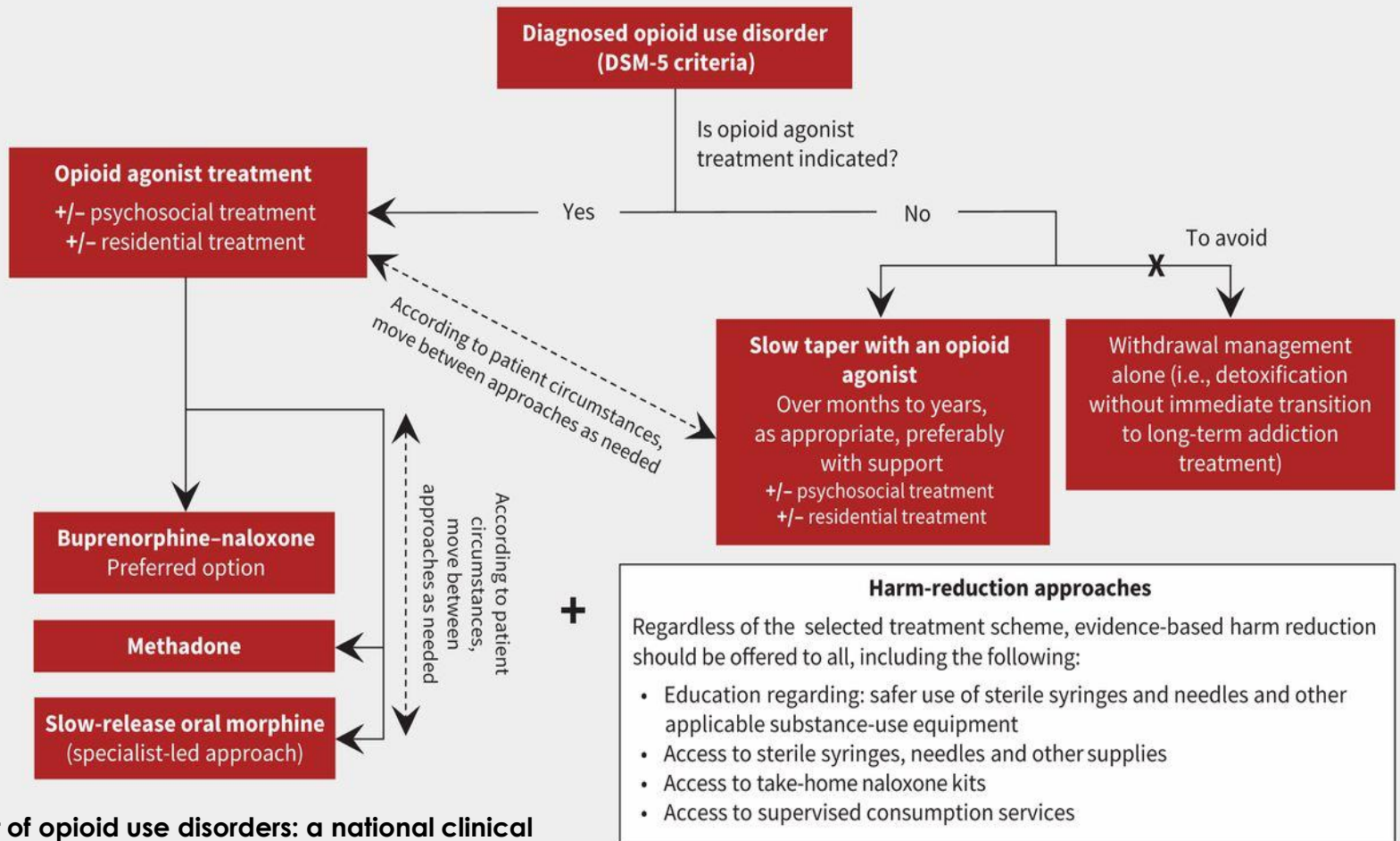
30 hours

Long-Acting Opiates

72 hours

Symptoms Peak

- ✓ Nausea
- ✓ Vomiting
- ✓ Stomach Cramps
- ✓ Diarrhea
- ✓ Goosebumps
- ✓ Depression
- ✓ Drug Cravings



Management of opioid use disorders: a national clinical practice guideline

Julie Bruneau et al , CMAJ , VOLUME 190 ISSUE 09

Cannabis

Bhaang , gaanja and Charas



Bhang: the legal preparation in INDIA

- Milk based drink called **Thandai**
 - commonly used in North India on religious occasions (Holi & Shivratri)
- Bhang mixed With flour to make '**pakodas**' or '**bhajji**'.
- **Bhang Sweets**
- **Manoka**: Preparation consisting of bhang paste
 - sold as Ayurvedic medicinal preparation in North India.



Illegal cannabis preparations

The following forms are illegal in India according to NDPS act:

Forms (extremely variable)	THC content	Route of intake
Ganja	4 – 6 % THC	Smoked
Hashish /Charas	10 – 20 % THC	Smoked
Hash oil	15-30% THC (may be more)	Smoked



Cannabis: Psychological effects

- ▶ A dreamy state with an increased tendency to fantasize
 - ▶ State of euphoria, well being and enjoyment.
 - ▶ Generally followed by a period of drowsiness.
- ▶ Perceptual and sensory distortions.
 - ▶ Can prolong reaction time and impair coordination
 - ▶ Sounds and colours may become more intense
- ▶ Restlessness, fear and even panic may spoil the experience (“**bad trip**”).
- ▶ There may be driven activity (subject knows that one’s activities are meaningless, yet is unable to control them).



MANAGEMENT

- ▶ benzodiazepines are the most commonly prescribed medications in cannabis withdrawal.
- ▶ Buspirone has emerged as a reasonable first choice
- ▶ fluoxetine, N-acetylcysteine and baclofen are the other alternatives
- ▶ Mood stabilizer like sodium valproate and others like atomoxetine
- ▶ CB1 receptor inverse agonist, rimonabant, marketed as an appetite suppressant has been tried with some success
- ▶ Non pharmacological interventions like MET, CBT, contingency management and family therapy.

Sedative – hypnotics

Medications which produce sleep, relaxation or sedation (brain depressants)

Used for:

► Sleep

- Diazepam (Valium, Calmpose, Diza) – oral tablets and injections
- Nitrazepam (Nitravet, No-10) – oral tablets
- Lorazepam (Larpose, Ativan) - oral tablets and injections

► Allergy

- Promethazine (Phenagan) – injections
- Pheniramine (Avil) - injections

► Mental illness: anxiety, depression

- Alprazolam (Alprax, Trika) – oral tablets



Use of Sedative – hypnotics as drugs of abuse

- ▶ **Abused alone (less common)**
 - ▶ Prescribed for medical/psychiatric problem
 - ▶ May continue use beyond doctor's prescription
 - ▶ May take in doses more than prescribed by doctor
- ▶ **Abused in combination with other drugs (more common)**
 - ▶ Commonly as a cocktail with other opioids
 - ▶ Example:
 - ▶ Heroin + Nitrovet tablets (heroin by chasing and Nitrovet orally)
 - ▶ Heroin + Avil (as injection)
 - ▶ Buprenorphine + Diazepam/Avil (as injection)
 - ▶ Pentazocine + Phenargan (as injection)

Benzodiazepine Withdrawal Timeline



General: Symptoms last 1-4 days
Acute: Symptoms peak around week 2 and then begin to subside

Symptoms can last a few days up to several months or even years if not addressed professionally.



MANAGEMENT

- ▶ Gradual dose reduction of prescribed sedative
- ▶ Switching to a long half-life sedative from a short half-life sedative
- ▶ medications such as antidepressants, melatonin, valproate, carbamazepine and flumazenil can be considered on an individual basis.

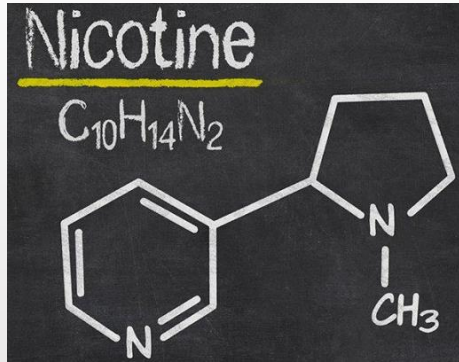
Tobacco: smoking form



Tobacco: Smokeless form



Nicotine & Tobacco



- ❖ **Nicotine** is a tertiary amine consisting of a pyridine and a pyrrolidine ring.
- ❖ Nicotine is the most damaging ingredient of tobacco. It constitutes approximately 0.6–3.0% of the dry weight of tobacco.

Uses & disadvantages of Nicotine

- ❖ It functions as an anti-herbivore chemical; consequently, nicotine was widely used as an insecticide in the past.
- ❖ Nicotine is highly addictive. An average cigarette yields about 2 mg of absorbed nicotine, acting as a stimulant. This stimulant effect is a contributing factor to the addictive properties of tobacco smoking.
- ❖ Nicotine's addictive nature includes psychoactive effects, drug-reinforced behavior, compulsive use, relapse after abstinence, physical dependence and tolerance.



Pharmacokinetics

- ❖ Nicotine when smoked reaches in blood in 4 seconds, & in brain in 7 seconds.
- ❖ Distribution is rapid
- ❖ Half life ~ 2 hours
- ❖ Nicotine is metabolized in the liver by cytochrome P450 enzymes (mostly CYP2A6, CYP2B6) and FMO3. A major metabolite is cotinine.
- ❖ During sleep level falls progressively causing intense craving in the morning

WORLD AND TOBACCO

- ❖ Worldwide in the early 1990s, the prevalence of smoking in men was 47%, and, in women, the prevalence was 11%.
- ❖ Smoking is more prevalent in those with lower education and income and in many, ethnic groups and is especially high in psychiatric patients (50 %), including those with other substance use disorders (80%).
- ❖ Tobacco use is the cause of over 5 million deaths per year globally, over twice as many deaths due to alcohol and illicit drugs combined
- ❖ It is estimated that tobacco attributable deaths will rise to 8.4 million by 2020 and reach 10 million annual deaths by 2030.

INDIA AND TOBACCO



- ❖ Approximately 20% of the global burden of tobacco-related illness occurred in South-East Asian countries that experience high child and high adult mortality (Bangladesh, India, Myanmar and Nepal).



- ❖ In India, bidi smoking and tobacco *quid* chewing were shown to play a significant role in the development of fatal diseases.

Recognize Tobacco in its Many Forms



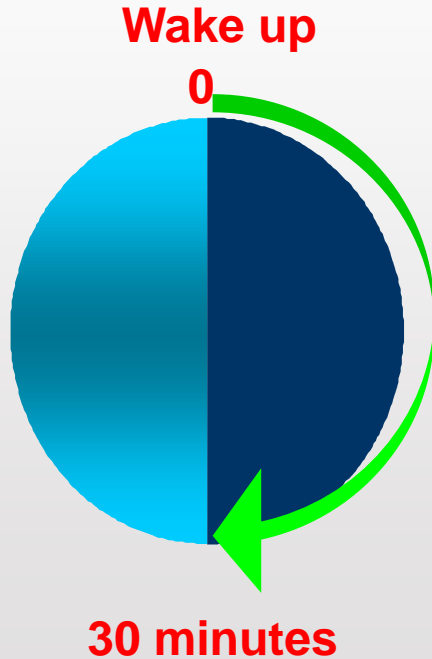
Cigarette

- ❖ A small cylinder of finely cut tobacco leaves rolled in thin paper for smoking
- ❖ The filter may be made from cellulose-acetate fibre, paper or activated charcoal
- ❖ Filters can reduce "tar" and nicotine smoke yields up to 50%, but are ineffective in filtering toxins such as carbon monoxide
- ❖ Of the more than 7,000 chemicals in tobacco smoke, at least 250 are known to be harmful, including hydrogen cyanide, carbon monoxide, and ammonia

Time to first cigarette (TTFC)

TTFC
More than
30 minutes
after waking

Low
dependence



TTFC
Less than or
equal to
30 minutes after
waking

High
dependence

Modified Fagerström Test

1. How soon after you wake up do you smoke your first cigarette?

Within 5 minutes (3 points)

5 to 30 minutes (2 points)

31 to 60 minutes (1 point)

After 60 minutes (0 points)

2. Do you find it difficult not to smoke in places where you shouldn't, such as in church or school, in a movie, at the library, on a bus, in court or in a hospital?

Yes (1 point)

No (0 points)

3. Which cigarette would you most hate to give up; which cigarette do you treasure the most?

The first one in the morning (1 point)

Any other one (0 points)

4. How many cigarettes do you smoke each day?

10 or fewer (0 points)

11 to 20 (1 point)

21 to 30 (2 points)

31 or more (3 points)

5. Do you smoke more during the first few hours after waking up than during the rest of the day?

Yes (1 point)

No (0 points)

6. Do you still smoke if you are so sick that you are in bed most of the day, or if you have a cold or the flu and have trouble breathing?

Yes (1 point)

No (0 points)

Scoring: 7 to 10 points = highly dependent; 4 to 6 points = moderately dependent; less than 4 points = minimally dependent.

MODIFIED FAGERSTROM - SMOKELESS TOBACCO

1. How soon after you wake up do you place your first dip?

- Within 5 minutes 3
- 6-30 minutes 2
- 31-60 minutes 1
- After 60 minutes 0

2. How often do you intentionally swallow tobacco juice?

- Always 2
- Sometimes 1
- Never 0

3. Which chew would you hate most to give up?

- The first one in the morning 1
- Any other 0

4. How many cans/pouches per week do you use?

- More than 3 2
- 2-3 1
- 1 0

5. Do you chew more frequently during the first hours after waking than during the rest of the day?

- Yes 1
- No 0

6. Do you chew if you are so ill that you are in bed most of the day?

- Yes 1
- No 0

TOTAL SCORE:

SCORING INSTRUCTIONS: Add up responses to all items. A score of 5 or more indicates a significant dependence, while a score of 4 or less shows a low to moderate dependence.



MANAGEMENT

BEFORE THERAPY

- ❖ Try to lay out benefits of quitting: Personalized reasons for quitting tobacco use, stated in positive terms is likely to be more compelling
- ❖ Assess the motivation level & dependence level as the balance between both is critical to the individual's chances to quit.

Behavioural methods : Problem Solving & Skill Training

Quit plan

- ❖ Enlist support (family, friends, colleagues)
- ❖ Review past periods of abstinence (what helped -what hindered?)
- ❖ Identify future problems and make a plan to deal with them (problem-solving)
- ❖ Set a date to stop and stop completely on that day
- ❖ Use pharmacotherapy (whichever product suits best)
- ❖ Monitor smoking, psychiatric status and side effects, after a week.
- ❖ If patient lapses, discuss changing therapy.
- ❖ If patient relapses , state willingness to help again in near future

Nicotine replacements (NRT)



Nicotine Patch



Nicotine Gum



Nicotine Lozenge



Nicotine Inhaler



Nicotine Nasal Spray

Nicotine Gums : Most Common form NRT used

- ❖ If first cigarette is smoked more than 30 minutes after waking up, use the 2-mg gum.
- ❖ People who smoke their first cigarette within 30 minutes of waking up should use the 4-mg gum.
 - First 6 weeks one piece of gum every 1 to 2 hours
 - Next 3 weeks one piece every 2 to 4 hours
 - Next 3 weeks one piece every 4 to 8 hours.



Bupropion

- Bupropion is norepinephrine-dopamine reuptake inhibitor (NDRI) & a nicotinic antagonist primarily used as an antidepressant and smoking cessation.
- Reduces the severity of nicotine cravings and withdrawal symptoms.
- A typical bupropion treatment course lasts up to twelve weeks, with the people halting the use of tobacco in about ten days into the course.

Varenicline

- ❖ An $\alpha_4\beta_2$ Nicotinic Acetylcholine Receptor Partial Agonist
 - ❖ Agonist effects are significantly less than those of nicotine
 - ❖ High affinity to these receptors competitively blocks nicotine's ability to stimulate
- Days 1 — 3: 0.5 mg once daily
Days 4 — 7: 0.5 mg twice daily
Day 8 — End of treatment: 1 mg twice daily
- Patients should be treated for 12 weeks
 - An additional 12 week period may be considered in an effort to enhance their long-term success
 - Patients who are unsuccessful during the 12 weeks of initial therapy should be encouraged to make another attempt
 - Lower the dose in severe renal dysfunction

Others

❖ Clonidine

- Clonidine decreases sympathetic activity from the locus ceruleus and is thereby thought to abate withdrawal symptoms.
- however, the scientific database for the efficacy of clonidine is not as extensive nor as reliable as that for nicotine replacement.

❖ Nortriptyline

- appears to be effective for smoking cessation.
- Owing to its more significant side effects, it is used after nicotine-replacement and bupropion fails.

Volatile solvents (Inhalants)





Common chemicals / items used as inhalants

- ▶ Industrial adhesives (sulochan)
- ▶ Ink-remover (Erase Ex, dilutor)
- ▶ Paint thinner
- ▶ Petrol
- ▶ Nail polish remover
- ▶ Marker
- ▶ Others - Boot polish, iodex, etc.



How are Inhalants used?

- ▶ Inhalants can be breathed in through the nose or the mouth
 - ▶ “Sniffing” or “snorting” through the nose
 - ▶ “Bagging”—sniffing or inhaling fumes from substances sprayed or deposited inside a plastic or paper bag
 - ▶ “Huffing” from an inhalant soaked rag stuffed in the mouth
- Commonly poured on a piece of cloth/shirt sleeve/rag/towel and inhaled



MANAGEMENT

- Advice to minimize the stimulation for patient, in order to reduce anxiety and agitation
 - Ensure adequate rest and sleep
 - Ensure hydration, by means of adequate oral fluids; and regular meals.
 - Analgesics (e.g. paracetamol, ibuprofen) can be given for headache or somatic pain/s.
 - Benzodiazepines (e.g. lorazepam) may be used to manage the anxiety, agitation and sleep disturbances
- In case of in-patients, monitor the vitals regularly
- Monitor for any sudden change in patient's state (hallucinations, seizures, breathing problems, hypervigilance, unusual agitation etc.)

Stimulants

Amphetamine type stimulants (ATS)



Coca leaf and cocaine powder





Stimulants: Psychological effects

- ▶ Immediately after smoking the drug or injecting it- extremely pleasurable ‘rush’ or ‘flash’
 - ▶ Enhanced mood and body movement, euphoria
 - ▶ Increased respiration
 - ▶ Increased heart rate, blood pressure
 - ▶ Insomnia
 - ▶ Reduced appetite

Cocaine Withdrawal Timeline



Cocaine has a very short half-life for a drug resulting in withdrawal symptoms starting as soon as 90 min after last dose



Additional Factors Influencing the Timeline

- Length of use
- Drug purity
- Co-occurring mental health
- Size of dose
- Environment

CNS HALLUCINOGENS



**LSD: Lysergic Acid
Diethylamide**

Phencyclidine, Ketamine



**Atropinic compounds:
Datura (belladonna)**



CNS Hallucinogens

- ▶ Produce distortions in sensations
 - ▶ Hallucinations: visual, auditory, etc.
 - ▶ Distorted perception of time, world, self
 - ▶ Synaesthesia: melding of two sensory modalities

Others

New psychoactive substances

NPS began to appear in the UK drug scene around 2008/09. They fall into four main categories:

1. Synthetic cannabinoids
2. Stimulant-type drugs
3. Downer' /tranquiliser-type drugs
4. Hallucinogenic drugs

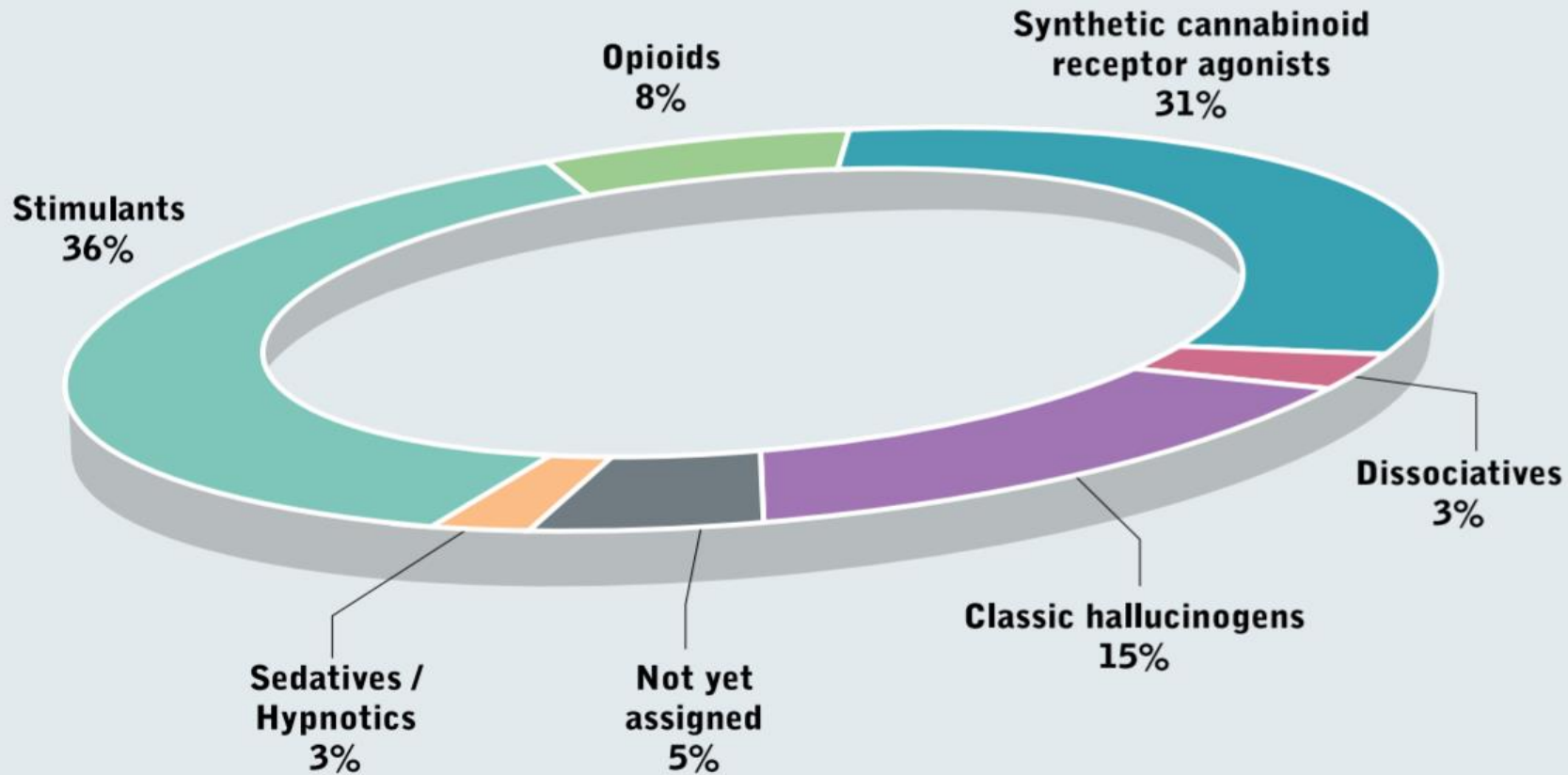
Mephedrone (Meow-Meow)



Synthetic cannabis



Newer forms of substances manufactured in laboratories
Mostly used in rave parties



Source: United Nations Office on Drugs and Crime, Early Warning Advisory on NPS, 2019.

MANAGEMENT OF DUAL DIAGNOSIS

- ▶ Many patients present with multiple substance use or comorbid psychiatric disorders, Management of both entities in parallel
- ▶ Goals are :Address acute and life threatening conditions (substance intoxication and withdrawal, psychiatric symptoms like suicidality, medical illness)
- ▶ Promote abstinence from substance of use
- ▶ Control the symptoms of psychiatric disorder
- ▶ Address the comorbid medical illnesses if any
- ▶ Increase motivation for recovery
- ▶ Enhance coping and inculcate relapse prevention skills
- ▶ Improve socio-occupational functioning
- ▶ Promote maintenance of recovery through continued treatment and/or participation in self-help groups

NON PHARMACOLOGICAL INTERVENTIONS

- ▶ MET- motivation enhancement therapy
- ▶ RPT- Relapse Prevention therapy
- ▶ CBT- Cognitive Behaviour Therapy
- ▶ Family focused intervention
- ▶ Coping skills enhancement
- ▶ Self help groups- AA, NA
- ▶ Relaxation techniques

THE "5AS"

THE 5 MAJOR STEPS IN THIS INTERVENTION ARE:

- **ASK** ABOUT SUBSTANCE USE
- **ADVISE** -- ADVISE TO QUIT
- **ASSESS** COMMITMENT AND BARRIERS TO CHANGE
- **ASSIST** PATIENTS COMMITTED TO CHANGE
- **ARRANGE** -- ARRANGE FOLLOW-UP TO MONITOR PROGRESS

Psychosocial interventions can be delivered...

- **Individually...**



- **..or in a group**



Psychosocial interventions can be delivered by...

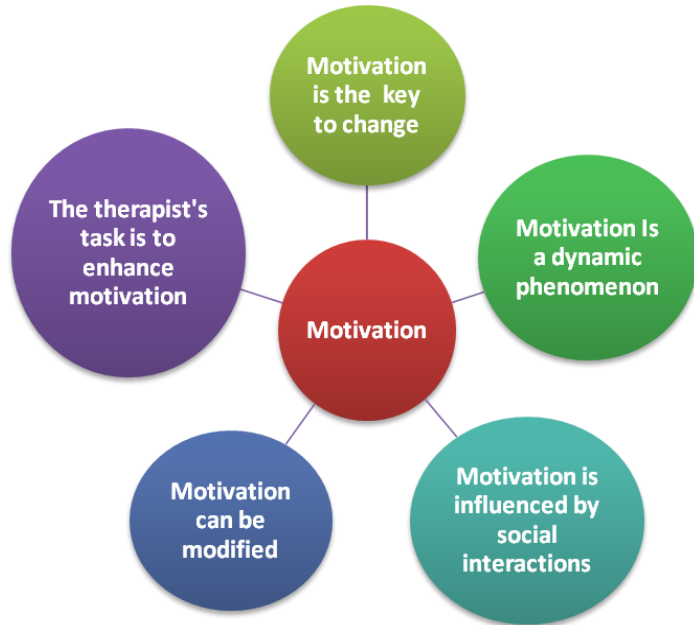
- **a therapist**



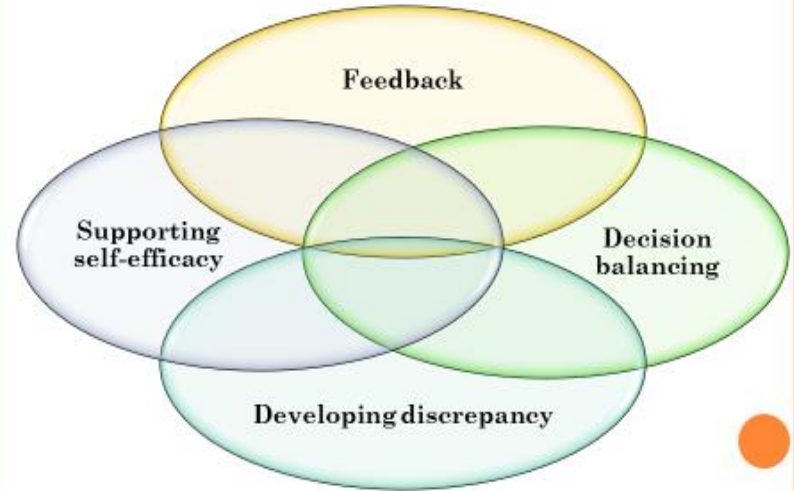
- **..or by peers**



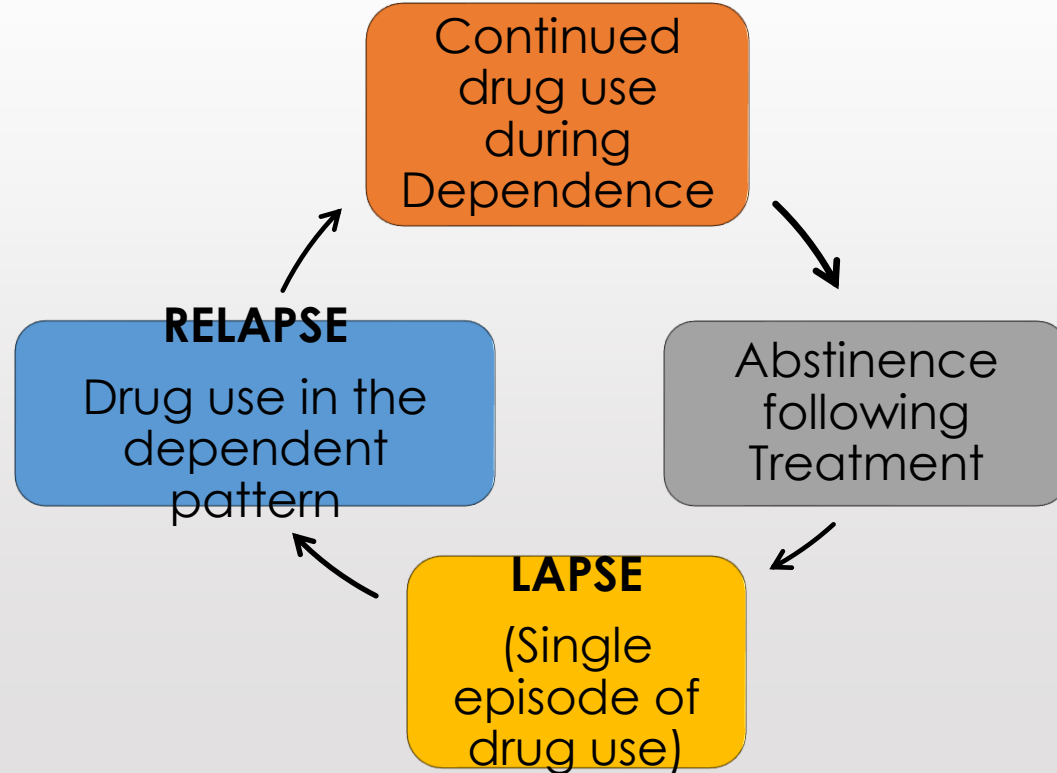
MOTIVATION ENHANCEMENT



STRATEGIES/TECHNIQUES FOR ENHANCING MOTIVATION



Relapse prevention and management






Warning signs of relapse

Socializing with
drug users

Missing
treatment
appointments

Experiencing
Increased
boredom

Significant
increase in
thoughts of
using drugs



Coping strategies

- ▶ Staying away from people who use drugs, places associated with drugs
- ▶ Not keeping drugs at home
- ▶ Being in company of people with whom drug use is difficult
- ▶ Leaving money at home, carrying very little money with oneself
- ▶ Telling oneself of the consequences of drug use and about the increased risk of relapse that may be associated with a single instance of use
- ▶ Telling oneself the benefits of not taking drugs
- ▶ Handling feelings of anger and frustration directly and not resorting to drug use
- ▶ Understanding that it will take time for the family/friends to develop trust again
- ▶ Keeping oneself busy
- ▶ Developing alternative sources of pleasure or high
- ▶ Being regular in follow-up



Acknowledgement

- ▶ OST, MOHFW
- ▶ NDUS, MOSJE
- ▶ AIIMS, New Delhi



References

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- ▶ CPG, IPS

THANK YOU

