Newer Psychoactive Drugs
Epidemiological and Clinical issues

Dr. S. R. Parkar  DPM, M.D. ,M Sc Ph.D.
PROF & HEAD
Dept. Of Psychiatry &
Chief:  Drug De-addiction Centre,
G.S.M.C. & K.E.M. Hospital,
Parel, Mumbai – 12
Introduction

- Newer Psychoactive Drug (NPS): A global phenomenon with over 100 countries and territories from all regions of the world having reported one or more NPS.

- Up to December 2015, more than 600 substances have been reported to the UNODC.

- NPS is often linked to health problems ranging from seizures to agitation, aggression, acute psychosis.

- Potential development of dependence.
NEWER PSYCHOACTIVE SUBSTANCES (NPS)

- United Nations Office on Drugs and Crime report define (NPS) as

  “Substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat”.
Street Names

- “Designer” drugs
- “Spice”
- “Bath salts”
- “Special K”
- “Herbal incense”
- “Legal high”
Magnitude

- Methamphetamine dominates the global market for synthetic drugs, and is expanding in East and South-East Asia
- M-Cat, Crystal Meth abuse a growing concern for India: NCB report
- "Mephedrone epidemic". The city's psychiatrists are flooded with cases of Mephedrone addiction. a new, cheaper drug doing the rounds and is commonly known as 'meow meow' or M-Cat drug
Perceived sources of NPS

- Asia followed by Europe, the Americas, Africa and Oceania
- In Asia CHINA and INDIA
- Domestic manufacture by several countries in Asia, The America and Europe.
- The mode of trafficking by air followed by mail without regional variation
- Global web based marketing and distribution
NPS substances group

- Ketamine & Phencyclidine-type substances
- Phenethylamines
- Synthetic cannabinoids
- Synthetic cathinones
- Aminoindanes
- Piperazines
- Tryptamines
- Plant-based substances
- Other substances
CLINICAL FEATURES
Ketamine & Phencyclidine-type substances


Frequently sold as ecstasy
KETAMINE

- Starting and maintaining anesthesia.
- Chronic pain and for sedation in intensive care
- Subanesthetic doses - Dissociative state, sense of detachment from one's physical body and the external world
- Depersonalization and Derealization.
- "K-land"- a state of extreme dissociation with visual and auditory hallucinations in high doses

- Impaired motor function, hypertension , potentially fatal respiratory problems, amnesia
Phencyclidine-type substances
PCP, Angel dust

- **Stimulants**: mimicking the effects of traditional drugs such as cocaine, amphetamine, ecstasy.
- **Dissociatives**: a class of hallucinogens which modulate effects at the N-methyl-D-aspartate (NMDA) receptor
- Feelings of detachment and dissociation from self and the environment.
- Behavioral toxicity leads to psychiatric syndromes, violent behaviour
- Acute PCP intoxication- range of behavioural effects, mild neurologic and physiologic abnormalities, stupor/coma
Phenethylamines

- Chemically similar to amphetamine, methamphetamine, MDMA
- **Street name**: ‘Europa’ for 2C-E ‘4-FMP’ ‘RDJ’ for 4-FA;
- **Stimulants** mediate the actions of dopamine, norepinephrine and/or serotonin
- **Classic hallucinogens** (*psychodelics*) produce hallucinations
- Agitation, tachycardia, mydriasis, severe limb ischemia, seizures, liver and renal failure.
CRYSTAL METH

meth, speed, ice, crank

• Boost mood, increase feelings of well-being, increase energy and alertness.
• Reduced appetite.
• Increased and irregular pulse.
• Increased blood pressure and body temperature.
MDMA, ECSTASY
Molly, Love Drug.

3,4-methylenedioxymethamphetamine.

• Club Drug as popular in night club and also at raves (all night dance parties).

• Available as tablet, pill, capsules. Pills maybe of different colors and may have cartoon like images on them.

• Feelings of being alert, hyper, elation, sensory delight and other changes in perception.

• Induces a sense of intimacy with others and diminished feelings of fear and anxiety.
Piperazines (BZP)

- Has similar properties to amphetamine
- Frequently sold as ‘ecstasy’, ‘pep pills’, ‘social tonics’ or simply ‘party pills’. Flying angel
- Stimulants Similar stimulant and hallucinogenic effects as MDMA- mimicking the effects of traditional drugs such as amphetamine, ecstasy.
- Renal Failure, hyperthermia,
- Toxic seizures and respiratory acidosis after the use of BZP alone
Synthetic Cathinones

- Related to Phenethylamines and chemically similar to amphetamine, methamphetamine, MDMA
- Products sold as ‘research chemicals’, ‘plant food’, ‘bath salts’ or ‘glass cleaner’ and are usually sold in powder, pill or capsule form.
- **Bath salts**: Mephedrone, Methylone, MDPV
- **CNS stimulants**: Mimicking the effects of traditional drugs such as cocaine, amphetamine, ecstasy.
Synthetic Cathinone "Flakka" (alpha-PVP)

- White or pink, foul-smelling crystal
- Eaten, snorted, injected, or vaporized in an e-cigarette or similar device.
- "Excited delirium" - Hyperstimulation, paranoia, and hallucinations - violent aggression and self-injury
- Cardiac, psychiatric, and neurological signs
- Deaths - suicide
- Dangerously raise body temperature and lead to kidney failure.
Mephedrone
4-methyl methcathinone

m-cat' 'meph' 'drone’ ‘miaow’
MEPHEDRONE

Psychosis
Behavioural Problems
Agitation
Insomnia
Socio Occupational Issues
Death
Synthetic cannabinoids


- ‘Classical cannabinoid’ Functionally similar THC Tetrahydrocannabinol

- Act as synthetic cannabinoid receptor agonists (SCRA)
  - Cardiovascular problems and psychological disorders
  - Addiction and withdrawal symptoms similar to those seen with cannabis abuse
Methods of abuse: K2 products are usually smoked in joints or pipes, but some users make it into a tea.

Effect on mind: similar to those of marijuana and include paranoia, panic attacks, and giddiness.

Significant effects on mental health: disorientation, anxiety and panic. Short-term memory can also be severely impaired.

Effect on body: Increased heart rate and increase of blood pressure. The long-term effects on humans are not fully known.
**Synthetic Cannabinoids**

- **K2 or “Spice”** is a mixture of herbs and spices that is typically sprayed with a synthetic compound chemically similar to THC, the psychoactive ingredients in marijuana.
- The chemical compounds typically include HU-210, HU-211, JWH-018, and JWH-073.
- K2 is commonly purchased over the Internet. It is often marketed as incense.
Aminooindanes

- Highly potent selective serotonin releasing agents such as MDAI and 5-IAI, and ETAI
- Street names of MDAI include ‘MDAI gold’, while 2-Al has been found in party pills known as ‘pink champagnes’
- Central nervous system Stimulants -mediate the actions of dopamine, norepinephrine and/or serotonin
- Mimicking the effects of traditional drugs such as cocaine, amphetamine
- Relatively benign at recreational doses
- Slight neurotoxicity in rodent
Tryptamines

- **Classic hallucinogens** *(psychedelics)*

- Most are psychoactive hallucinogens found in plants, fungi and animals

- Street names for some Tryptamines - *‘Foxy-Methoxy’* (5-MeO-DIPT) *‘alpha-O’ ‘alpha’*

- In preparations of dried or brewed mushrooms

- Reported adverse effects - restlessness, agitations, gastrointestinal distress, and muscle tension
Psilocybin
- No dependence
- Enhancement of colors – halos
- Increased visual and auditory clarity
- Can cause LSD like trip
Plant-based substances

- **KHAT**
  

- Increased alertness, euphoria, hyperthermia, anorexia, increased respiration rate, heart rate and blood pressure

- Prolonged use of khat: psychiatric disturbances (from psychosis to depression) to damage of major organs of the body
Kratom
Thang, Thome

- Acts on opioid receptors
- Seems to be a stimulant in lower doses
  - Mitragynine
- Seems to be a sedative at higher doses
  - 7 hydroxymitragynine
- Often produces a mixed effect
- Adverse effect same as Khat
Other Substances

- **Classic hallucinogens** (*psychedelics*): specific serotonin-receptor activities and produce hallucinations
- **Opioids**: binding to specific opioid receptors, resulting in morphine-like effects e.g. analgesia
- **Sedatives / Hypnotics**: central nervous system depressants
- **Stimulants**: mediate the actions of dopamine, norepinephrine and/or serotonin
ROHYPNOL / GHB

The Date Rape Drug
ROHYPNOL

- Rohypnol or Roofies: Flunitrazepam
- 10 times stronger than Valium
- Sedative effects appear 15 to 20 minutes after ingestion and last for 4 to 8 hours.
- *Incapacitate* victims and prevent them from resisting sexual assault.
- Cause “antero-grade” amnesia, muscle relaxation, sleep and impair motor skills.
FENTANYL-Actiq, Duragesic, and Sublimaze.

- Powerful synthetic opiate analgesic similar to but more potent than morphine.
- It is typically used to treat patients with severe pain, or to manage pain after surgery.

Street names - Apache, China girl, China white, dance fever, friend, Goodfella, jackpot, TNT,
Effects:
Euphoria, drowsiness/ respiratory depression and arrest, confusion, constipation, sedation, coma

- Injection, transdermal patch, or in lozenge form.
- It can be mixed with (or substituted for) heroin in a powder form.
Withdrawal

- Anxiety
- Restlessness
- Yawning
- Nausea
- Sweating
- Rhinorrhea
- Lacrimation
- Dilated pupils
- Abdominal cramps

- Diarrhea
- Vomiting
- Piloerection
- Muscular spasm, pain
- Chills
- Increased heart rate, blood pressure
- Increased temperature
GAMMA HYDROXYL BUTYRATE

*Liquid G, liquid X, liquid E, fantasy, liquid ecstasy*

- Central nervous system depressant
- Stimulant effect at lower doses
- Comparable with ethanol and MDMA
- Euphoria, disinhibition
- Enhanced libido
- Agitation, visual disturbances
- Drowsiness, amnesia
- Unconsciousness and death.
PRESCRIPTION DRUGS
Prescription Medication

- **Narcotic painkillers**: Oxycontin, Vicodin.
- **Tranquilizers**: Valium, Alprazolam, Clonazepam
- **Anti histaminics & Cough**: Syrups.
- **Stimulants**: Ritalin
- **Steroids**.
Benzodiazepines

- 4% of all prescriptions from general practitioners are for benzodiazepines (BZDs).
- Over 40% of prescriptions given to people >70 years old
- Night time use tends to increase with age
- Over half current users report daily use for >6 mths
- Limited long term efficacy.
Long Term Benzodiazepine Use

- Altered use patterns (from night time to daytime use)
- Excessive sedation and Cognitive impairment.
- Increased risk of accidents.
- Dependence & withdrawal
- Overdose issues esp. in combination with other drugs.
Why be serious about NPS?

- Serious threat to public health and safety
- Unprecedented rate of emergence of a global dimension
- Transient nature of some NPS
- Diversity
- Heterogeneity
- New psychoactive substances are sold in mixtures
THANK YOU