Addiction Studies
Introduction and drug policy

What is a drug?
A chemical entity used non-medically, self-administered for its *psychoactive effect*.
- Alters our physiology, mood, cognition or behaviour but does not constitute a food or nutrient
  - Coffee? – caffeine addiction is not currently classified
- Taken with *intent* to alter mood, cognition or behaviour

Psychoactive substance: a drug which has cognitive and/or behavioural effects (interacts with CNS)

Psychoactive drugs
Levels of harm:
- Toxicity (intoxication): acute immediate impact that the drug has in your body and brain when the blood-level concentration rises rapidly.
- Dependence: a slow, long-term process, a series of adaptations that occur in the brain. Associated with repeated use, harm is not so acute. A delayed effect and potentially long-lasting.

MDMA/ecstasy – more dangerous from a toxicity point of view. Usually aggravated by the environmental conditions e.g. dehydration. Few people become dependent.

DSM criteria
Substance use: self-administration of a psychoactive substance
Substance related disorders: pattern of use that meets DSM criteria
- Allows for subtyping based on a continuum from mild to severe
- In order to be considered "addicted", they need to meet these criteria
- Problem: mild severity typically don't seek treatment

DSM 5 Criteria
1. Tolerance – need more of it as you become tolerant to it to achieve the same effect (subjective and chemical)
2. Withdrawal – absence of drug leads to physiological effects
   - Argued that Cannabis doesn't generate severe withdrawal symptoms – can it be described as addiction?
   - Can lead to sleep problems, anger/aggression/irritability
   - Withdrawal can be expressed/measured in different ways
3. Significant time spent in activities to obtain/use substance, interference with everyday activities – all time spend dedicated to drug use. Detrimental impact on all aspects of life
4. Craving – strong desire for drug, can occur spontaneously even years after

ICD-10 Criteria
Harmful use rather than abuse
3+ of the following present together during the previous year:
1. A strong desire or <u>sense of compulsion</u> to take the substance (behavioural, not the same as craving)
2. <u>Difficulties in controlling</u> substance-taking behaviour in terms of its onset, termination or levels of use – may not be voluntary
3. <u>Withdrawal</u>
4. <u>Tolerance</u>
5. <u>Progressive neglect of alternative pleasures</u> or interests - lower subjective reality to pleasant images predict relapse

6. <u>Persisting with substance use despite clear evidence or overtly harmful consequences</u>, or drug-related impairment of cognitive functioning

Classification of psychoactive drugs

Depressants	Stimulants	Hallucinogens
Sedative/hypnotic Alcohol Benzodiazepines Barbiturates *Cannabis **GHB** *Narcotics* Heroin Morphine *Organic solvents* Glue Petrol	Amphetamines *Ecstasy Cocaine Nicotine Caffeine **Mephedrone Khat** **Methylphenidate Modafinil**	LSD *Ecstasy (MDMA) PCP Magic mushrooms *Cannabis **Spice, Bath salts Ayahuasca**

MONASH University   15

Benzo – sleeping pills
Barbi – neurotics

Alcohol can be stimulant then depressant

Some are in both – cannabis

GHB very strong depressant can generate coma, was marketed at party drug/stimulant

Drug policy
Policy options
1. Total prohibition
   o Criminal offence
Issues:
- Allocation of resources. All money related to drug control is going to prevention. Police enforcement strategy.
- Medical response if the prevention. Mitigating long term negative consequences. Addiction not recognized as a health issue.
- Cost effective? Illegal import and black market leads to exorbitant prices and unknown content/purity of substance.
- Not investing in research about the drugs, just about controlling them. Market can dictate addiction e.g. producing more addictive cannabis leads to returning clients. So research is needed.

2. Partial prohibition
   o Possession of small quantities not prosecuted
   o Production and distribution of larger quantities is prohibited
Issues:
- Threshold and types are considered legal/illegal. Differential treatment of substances and amounts. Issues with defining substances as harmful or not harmful. E.g. MDMA classed as harmful but is not. David Nutt "A tale of two Es" alcohol is much more dangerous.
- Cost-ineffective impact of prohibition is acknowledged.

3. Decriminalisation
   o Removes criminal component of drug use – assumes it is a health problem

4. Controlled availability
   o Substances are available in known doses and purity, they are regulated
   o Provision of information and education to drug users
   o Profit taken out of the black market
   o Taxed so pays for the system and reduces law enforcement costs

o   Criminality reduced as they don't have to go into the illegal market

Issues:
- Drugs can be used in a medical point of view e.g. heroin as a treatment for heroin users in Switzerland. Trials have been initially successful but in the long term don't reduce mortality.
- Black market may still come out with a cheaper form so you are competing

Switzerland:
- Establish a needlepark (Platzspitz)
- Established heroin trials in 1994
- 1000 participants were given methadone, morphine & heroin either alone or in combination, with significant support (social workers, psychologists etc.)
- Improved physical, psychological, & social functioning of patients; 2/3 found jobs; OD rate halved
- Reduced crime rate led to widespread support from law enforcement

Netherlands:
- Prescription heroin trials were very successful (van den Brink, 2003)
- Participants given either methadone & heroin or methadone alone:
– Methadone alone – 32% improvement, Heroin + methadone – 57% improvement
- Improvements in physical, psychological & social functioning
- BUT - Within 2 months of ceasing the program, deterioration was seen across all areas of functioning

5. *Uncontrolled availability*
o   Not implemented anywhere in the world

War on drugs (USA)
Preventing drug use altogether
- 1960's in U.S.A drug use major issue and high rate of heroin use in Vietnam
- President Nixon called for a "War on Drugs", also established a role for treatment such as methadone, but increasingly the US policy has been one of prohibition
- US$30-60 billion spent each year on US war on drugs
- Majority of funding spent on border control & supply reduction
- Purity and means price controlled by illegal drug trade

Harm minimalisation (Australia)
Drug use has always existed and will continue to exist, so focus on harm associated with drugs rather than preventing it altogether
➔ Impact on HIV prevalence

Australia- Adopted harm minimization in 1985
National drug strategy Australia
1. Minimize the level of illness, disease, injury and premature death
2. Minimize the level and impact of criminal drug offenses
3. Minimize the level of personal and social disruption
4. Prevent the spread of hepatitis, HIV/AIDS and other infectious diseases

Current controversies
- Therapeutic uses of illegal drugs
- Cost-efficiency of treatment services
- Harm reduction strategies: supervised injecting rooms and trials of prescription heroin

Drug	Therapeutic uses	Potential therapeutic uses	Neuroscience research interests
Cannabinoid THC	• Spasticity • Pain • Appetite stimulation	• Attention-deficit hyperactivity disorder • Post-traumatic stress disorder • Insomnia	• Nature of consciousness • Model of psychosis • Mechanisms of pain and appetite
Cannabinoid THCV		• Anxiety • Insomnia	• Emotion regulation
Ketamine	• Anaesthesia • Analgesia • Depression		• Glutamate (NMDA) receptor function • Model of psychosis
LSD	• Cluster headaches • Terminal illness	• Pain syndromes • Alcoholism	• Model of psychosis • Nature of consciousness • Perceptual processes • 5-HT receptor function
MDMA	• Psychotherapy for post-traumatic stress disorder	• Couples psychotherapy • Parkinson's disease • Brain recovery	• Emotion regulation • Empathy • 5-HT$_2$ receptor function
Mephedrone		• Cocaine dependence • Other stimulant addiction	• Stimulant function • Addiction
Psilocybin	• Obsessive-compulsive disorder • Cluster headaches • Terminal illness	• Depression	• Nature of consciousness • Perceptual processes • Model of psychosis and mood • 5-HT$_2$ receptor function