

# **Cannabinoids**

## Historical perspective

- Cannabis cultivated in China 6000 yrs ago
- American Indians widely used cannabis 1000 yrs ago
- Multipurpose and hardy crop yielding
  - Cooking oil
  - Edible seeds
  - Animal food
  - Hemp fiber
- Psychoactive drug



# Cannabis

Cannabis is the preferred general term.

Other terms: marijuana, ganga, mull, grass, hash, pot, weed, dope

Types of cannabis, in increasing strength

- Leaf << Head << Oil/resin

Diverse methods of smoking

- joint = cigarette of cannabis, typically 0.5g
- cone: smoked via a water pipe (bong), typically 0.25g
- bucket bongs
- vaporisers (increased ammonia levels via this method)



# Cannabinoids – Pharmacology

## THC – Tetrahydrocannabinol

- Group of >60 **dibenzopyran** chemicals found in leaves and flowering tops of female cannabis plant (*Cannabis sativa* and *Cannabis indica*)
- Some common cannabinoids are:

<b>In the plant:</b>	<b>In your body (endogenous):</b>	<b>Synthetic:</b>
$\Delta^9$ – THC	2-arichidonyl glycerol (2 – AG)	CP 55,940
$\Delta^8$ – THC	anandamide	HU – 210
cannabidiol and cannabinol		

## Spice – a synthetic cannabinoid

Seized spice mixtures have revealed the presence of synthetic (or designer) cannabinoid compounds.\* These bind to the same cannabinoid receptors in the body as THC (delta-9-tetrahydrocannabinol), the **primary psychoactive** component of marijuana.

Some of these compounds, however, bind more strongly to the receptors, which could lead to a much more powerful and unpredictable effect.

Notably, these compounds have not been fully characterized for their effects and importantly, their toxicity, in humans.

# Why do people use cannabis?

- To experience euphoria or perceptual distortions
- Because others do so
- To relieve mental symptoms
  - negative symptoms of schizophrenia
  - anxiety
- To relieve physical symptoms
  - eg nausea, anorexia, cancer & HIV
- Others you can mention

# Typical effects of cannabis

## Mental effects

- Euphoria, relaxation and wellbeing
- Increased appetite
- Talkativeness, disinhibition

## Physical effects

- Vasodilator (systemic and portal)
- Bronchodilation (short-term effect only)

## Highly variable

- Many people dislike it and discontinue use
- Influenced by surroundings

# Changing patterns of cannabis use

Weekly or more frequent use accounts for 96% of use

Earlier age initiation of use: increased risk of dependence

THC amount higher (breeding techniques)

Synthetic Cannabinoids (eg “Spice)

More use among vulnerable groups

- persons with schizophrenia
- conduct disordered adolescents

# Patterns of use

Initiation in mid teens

Most use cannabis intermittently

Surveys capture relatively low daily use

Discontinue in mid to late 20s

Impact of 'marriage, mortgages and children

Persistent use relatively rare

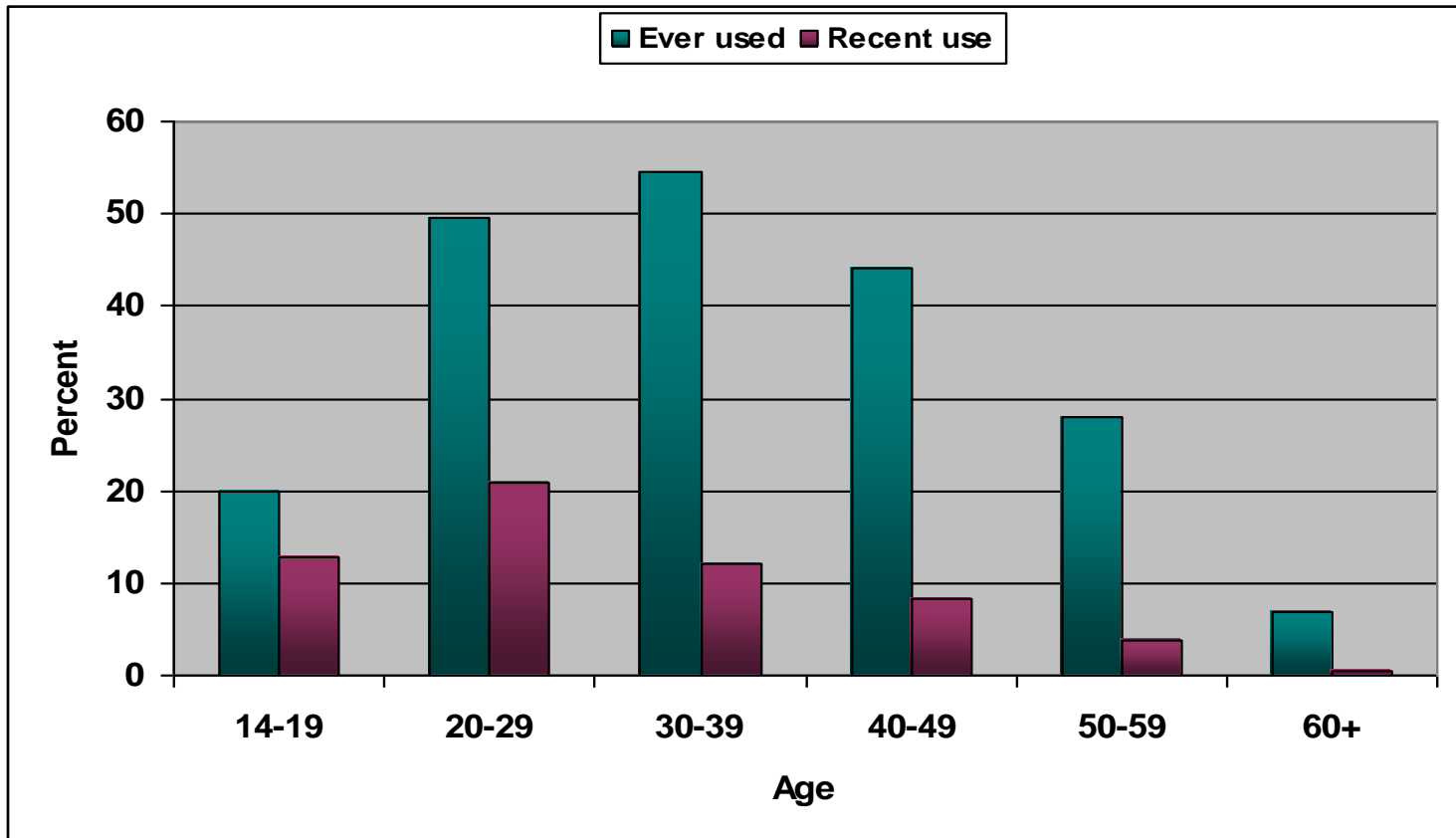
Persistent use predicted by

- early initiation

- heavier use

# Cannabis use across age groups

*2007 National Drug Strategy Household Survey*



# Concept of gateway drug use

Sequence of drug involvement

alcohol and tobacco precede cannabis, leading in turn to heroin and other drugs

BUT < 5% of those who've tried cannabis go on to use 'harder' drugs

Progression predicted by: earlier initiation

: heavier use

: other psychosocial issues

# Why the association with other drugs?

Selective recruitment to use

At risk and troubled youth more likely to use

Peer networks

Regular users affiliate with peers who use

Peer culture supportive of drug use and crime

Drug markets provide opportunities to use other drugs

Genetic vulnerability to drug dependence

## **Acute adverse effects**

Anxiety, dysphoria, panic, paranoia especially among adolescent users

Cognitive and psychomotor impairment while intoxicated

Psychotic symptoms (probably rare)

# **Adverse effects of chronic use**

Chronic intoxication

Dependence

Effects on adolescent development and school performance

Motivation, learning, memory reduced

Respiratory disease

Amotivational syndrome

Schizophrenia and psychosis

# Respiratory effects

Cannabis is primarily smoked

Cannabis smoke similar to tobacco smoke

Most also smoke tobacco and the differential effects are difficult to study

There is every reason to believe that the long-term harms are similar to those of tobacco

# **Cannabis and psychosis**

Cannabis psychosis

Toxic psychosis i.e. as a direct result of the cannabis intoxication

Functional psychosis i.e. persists once cannabis no longer present

Cannabis as a risk factor for schizophrenia

Precipitation

Exacerbation

High prevalence of cannabis use

Especially at period of risk for psychosis

Complicates causal attribution

# Cannabis and Schizophrenia

Consistent evidence that:

Cannabis use can precipitate schizophrenia

Four longitudinal studies in 3 countries

Cannabis can exacerbate schizophrenia

Clinical evidence

Retrospective studies

Prospective studies

Interventions studies

*But were these people susceptible and likely to develop this illness in time anyway?*

# Withdrawal

Symptoms worse in first week

Symptoms (rarely life-threatening):

irritability, anger

restlessness, anxiety

sleep difficulties, including strange dreams

craving, weight/appetite change, depressed mood,

physical discomfort

To some extent still controversial

No validated rating scale

# Treatment Options

Self-help

Mutual support

Brief interventions

Psychotherapy

Pharmacotherapy for withdrawal?

Diazepam (e.g. 5 mg tds x 3-5 days) for troublesome withdrawal? Limited evidence for a role

Cannabis antagonist ineffective; trials discarded

# Medical uses of cannabinoids

## **Antiemetic agent**

Better than placebo but not as good as most modern anti-emetics

Side effect of feeling stoned!

## **Appetite stimulant**

particularly in advanced HIV patients

## **Analgesic and antispasmodic**

**Dependencies** (obesity, tobacco, alcohol)  
other.....

# Considerations

Occasional use of cannabis is widespread, socially accepted and causes little harm

The legal status of cannabis use is likely to remain controversial

Disorders of cannabis use are increasingly recognized and contribute to loss of productivity, respiratory and mental illness

Management options are currently limited to counseling

## Case study:

Mark is a 34 year old who comes for help with his cannabis use. He is smoking 10 cones a day. He has tried to cut down on several occasions but finds he can't bear his edginess and poor sleep when he stops.

*Is there such a thing as cannabis withdrawal?*

*Would you say Mark is addicted to cannabis?*

*What harm is Mark's cannabis use likely to cause?*

*Are there treatments available for cannabis dependence?*

*Please answer it*

*STAY SAFE AND HOME*