

# Teacher's Notes – Cannabis & Mental Health

The question of legalisation, or decriminalisation of cannabis for recreational purposes or the use of cannabis-related products for medical purposes has become a significant political issue in many countries such as the United States, Canada and Ireland. This set of lessons aims to look at the scientific evidence behind the possible benefits of cannabis-related products and the known mental health harms of cannabis use. It's worth noting, like many other subjects, this evidence does not always agree with many claims made by advocacy groups or even with "common knowledge".



## A little bit of chemistry

Cannabis is a plant with a complex mix of 113 different chemical compounds, called cannabinoids, a lot of the debate around cannabis use is related to just 2 of these cannabinoids, THC and CBD.

- THC (Delta-9-TetraHydroCannabinol) is the psychoactive component in cannabis, it is the chemical that makes you high but can have psychotic side effects and lead to dependence
- CBD (Cannabidiol) is a compound that is being investigated for possible medicinal purposes. It is alleged to have relaxant properties. CBD can reduce the effects of THC.

Depending on the strain of cannabis, it can contain varying amounts of CBD and THC.

## Medicinal use of cannabis-related products, also called "Medical Marijuana"

Claims of medicinal benefits are generally based on the compound CBD. While a wide range of claims are made, the evidence is currently very thin and only for specific conditions such as spasticity in Multiple Sclerosis, nausea from chemotherapy and certain rare types of childhood-onset epilepsy such as Dravet syndrome and Lennox-Gastaut syndrome.

## What's changed since I was a Teenager?

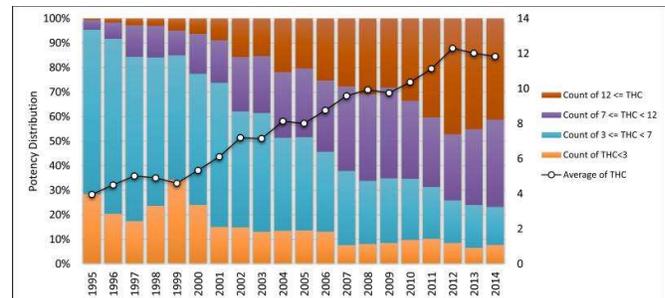
The level of THC in the cannabis people are using has risen significantly in recent years. The THC content of marijuana samples seized by the Drug Enforcement Administration (DEA) in the United States has climbed from around 3% in 1980 to 12% in 2012 and recently to 20%. Some cannabis edible products can have 90% THC content. Similar increases have been observed in Ireland.

This shift in average THC levels has been driven by a significant trend towards high potency cannabis (>12% THC).

Amounts of high potency cannabis have risen from 0.6% of samples in 1995 to 41.3% of samples in 2012.

It is also possible to buy pure THC (shatter) and use this to increase the potency of what users are consuming.

As a rough comparison, this is the equivalent of changing from drinking a half pint of light beer to a half pint of vodka.



Changes in Cannabis Potency Over the Last 2 Decades (1995-2014): Analysis of Current Data in the United States. *Biol Psychiatry*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4987131/>

## What are the risks for Young People?

The risks of cannabis use fall into three main categories:

1. Dependency
2. Psychosis
3. Cognitive impairment



### Dependency

Cannabis is popularly portrayed as non-addictive however the rise in THC levels have led to an increase in dependency on cannabis. Dr Bobby Smyth from HSE Addiction Services estimates that about 1 in 6 adolescent users will become dependent on (or 'addicted to') cannabis.

### Psychosis

One of the biggest areas of concern is the risk of cannabis induced psychosis. Psychosis is a mental health condition where the person loses touch with reality. They may hear sounds that are not there, see or feel things that are not there. They may also have beliefs that have no basis in reality such as paranoia and this can lead to violent behaviour. Their thinking may become disorganised.

Psychosis was less common with low strength (<5% THC)<sup>1</sup> cannabis but it is becoming more and more of a concern as higher strength cannabis becomes available. Well respected evidence from long term studies from around the world have shown that regular use of cannabis doubles or triples the risk of schizophrenia. Heavy users of strong cannabis, for example smoking skunk or sinsemilla (about 14% THC) everyday, are 5 times more likely to develop a psychotic disorder. Across Europe it is estimated that about one in every five new cases of psychosis are caused by cannabis<sup>2</sup>. This means that if everyone in the class started smoking cannabis one person in 20, instead of the normal rate of one person in a hundred, would develop a psychotic disorder.

### Cognitive impairment

Our brains are continually developing until about 25 years of age. The chemicals in cannabis target some of the receptors on the brain that control this development so there is concern that regular use can disrupt the natural brain development process<sup>3</sup>. Studies have shown a negative impact on thinking and memory from cannabis use.<sup>4</sup> Some of these negative effects disappear in 2-3 weeks but some appear to persist and may become permanent. Studies have shown that young people who use cannabis regularly can experience a drop in overall intelligence scores which may be irreversible. Cannabis use can be associated with an average drop of 2-3 IQ points (some have a bigger drop than others). Cannabis use in youth is also associated with poor school achievement and poorer functioning as a young adult.

### Recommended reading:

*Tell Your Children: the truth about marijuana, mental illness and violence*, Alex Berenson

<sup>1</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6312155/>

<sup>2</sup> <https://www.ncbi.nlm.nih.gov/pubmed/30902669>

<sup>3</sup> <https://www.ncbi.nlm.nih.gov/pubmed/25460036>

<sup>4</sup> <https://www.ncbi.nlm.nih.gov/pubmed/20621421>