

A LITERATURE REVIEW ON MEDICAL CANNABIS

BACKGROUND

A team of psychiatrists and researchers from the Institute of Mental Health, Singapore, conducted a literature review on cannabis in 2015. The research team reviewed more than 500 papers from international medical journals in the US and Europe (e.g. Journal of the American Medical Association, European Journal of Clinical Pharmacology) and other sources of information, such as international medical bodies (e.g. American Psychiatric Association, British Medical Association).

The scientific findings from the review are broadly classified in four areas:

- Harmful effects of cannabis use (including on the brain structure and function, development of psychiatric conditions and physical health);
- Addictiveness of cannabis;
- Effectiveness of cannabis for medical use; and
- Recommendations from international regulatory and medical bodies

KEY FINDINGS

Harmful effects of cannabis use

1. Long-term use of cannabis was found to be associated with structural and functional changes in the adult brain, and **impaired memory and decision making**. In particular, THC (tetrahydrocannabinol), the psychoactive substance found in cannabis, was found to lead to **brain volume reduction**, which was associated with **memory deficits** and **behaviours suggestive of depression**.
2. Exposure to cannabis for children in utero or in adolescence was associated with **adolescent brain changes that persist till adulthood**. This was subsequently associated with **a lower IQ, and a persistent and irreversible decline in cognitive performance in adulthood**.
3. There is evidence linking THC use to **impaired psychomotor performance**, leading to an **observed 7-fold increased risk of fatal accidents** on the road.
4. Research studies provided consistent evidence linking cannabis use to the **development of major psychiatric conditions**, such as schizophrenia, depression and bipolar disorder, particularly for early, chronic cannabis use.
5. The effects of smoked cannabis on physical health, such as cancers, poor oral hygiene and respiratory diseases, are similar to those of tobacco smokers. Cannabis users were also found to have a **higher risk of contracting tuberculosis (TB)** and a **higher risk of mortality after myocardial infarction (heart attack)**.
6. Cannabis use in pregnancy was also linked to **low birth weight in babies**, and **medical complications** such as pre-term delivery and growth retardation.

Addictiveness of cannabis

7. The studies in this review show that **cannabis is addictive**. **Among those who used cannabis, about 1 in 10 will develop dependence**. This increases to **1 in 2 among those who used cannabis daily**.
8. The evidence from human studies to support cannabis as a gateway drug is mixed. However, animal studies have shown that the use of cannabis and other addictive substances, such as heroin, increases the likelihood of using other illegal drugs.

Effectiveness of cannabis for medical use

9. There is some medical evidence to support the use of **purified synthetic cannabinoids** for the treatment of **limited** conditions, such as chemotherapy-induced nausea and vomiting, chronic pain, and spasticity due to multiple sclerosis.
10. However, the use of cannabinoids has to be weighed against its potential side effects, as information on their long-term safety and efficacy is scarce. There are **other currently available treatment options for these conditions, with comparable efficacy**.
11. **There is insufficient evidence to support the use of cannabinoids for other medical conditions**.

Recommendations from international regulatory and medical bodies

12. Most medical bodies **do not support smoking cannabis for medical application**. (Smoking as a form of administering medication is not practised today.) They also acknowledge that the **evidence for the use of medical cannabis is inconclusive**, and that further study is needed before a recommendation can be made.
13. The US Food and Drug Administration (FDA) **has not approved the use of cannabis plant as medicine**. The British Medical Association rejected the legalisation of marijuana. The World Health Organisation listed the potential harmful effects of cannabis use online.

CONCLUSION

- (A) Cannabis is harmful. Cannabis use, in particular THC, has been linked to **anatomical and functional changes in the brain**. It has also been linked to the **development of serious mental illnesses** such as schizophrenia, and may have **adverse consequences to foetal health**.
- (B) Cannabis is addictive. Cannabis, specifically THC, is **addictive**.
- (C) Insufficient evidence on the effectiveness of medical cannabis. There is some evidence to support the use of cannabinoids for certain limited conditions, but **insufficient evidence to support the use of cannabinoids for most conditions**.

The Research Team

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