



Cannabis Harms: What The Evidence Tells Us

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Introduction

In this presentation I will attempt two things:

- A very brief overview of the evidence on the harmful health consequences of cannabis.
- A more detailed account of an Australasian collaboration examining the impact of early cannabis use on later educational achievement.

Likely Health Consequences of Cannabis Use

(Based on Hall & Room 2008
in Beckley Foundation Report)

Mental Health Consequences

Increasing use of cannabis is likely to be associated with increased risks of:

- Cannabis dependence
- Psychosis/psychotic symptoms
- Depression, anxiety, suicidality (possibly)
- Increased risks of other illicit drugs

Consequences for Social Adjustment

Increasing use of cannabis in adolescence is likely to be associated with increased risks of:

- Educational under-achievement
- Welfare dependence
- Crime
- Limited economic achievement
- Impaired driving and motor vehicle accidents

Physical Consequences

Increasing use of cannabis is likely to be associated with increased risks of:

- Bronchitis and impaired respiratory function
- Respiratory cancers
- Reduced birth weight (as a result of pregnancy use)

The Burden of Cannabis Use

While cannabis use is associated with a wide range of adverse consequences, the burden on the public health imposed by cannabis use is modest. Estimates suggest that cannabis use in Australia accounts for:

- 0.2% of the total disease burden of Australia
- 10% of the burden due to illicit drugs

The disease burden due to cannabis is about 10% of that attributed to alcohol and 2.5% of that attributed to tobacco.

The Need for Collaborative Research

One of the limitations of research into the consequences of cannabis use is that different studies have been conducted by different investigators in different samples and sometimes reaching different conclusions. There has been a growing recognition in many areas of research about the need to combine and synthesise findings across studies.

The Cannabis Cohort Research Consortium (CCRC)

The CCRC is a consortium of Australasian cohort studies that has been convened by the National Drug and Alcohol Research Centre (NDARC) to coordinate findings from four cohort studies. These studies are:

- The Christchurch Health and Development Study (CHDS)
- The Dunedin Multi Disciplinary Health and Development Study (DMHDS)
- The Mater University Study of Pregnancy (MUSP)
- The Victorian Adolescent Health Cohort Study (VAHCS)

The Cannabis Cohort Research Consortium (CCRC) (cont)

All studies have gathered extensive data on cannabis use, psycho-social outcomes and social and contextual factors.

Age of Onset of Cannabis Use and Educational Achievement

The first collaboration developed by CCRC involved the examination of the linkages between age of onset of cannabis use and subsequent educational achievement. This collaboration involved data from the CHDS, MUSP and VAHCS cohorts.

Study Aims

The main aims of the study were to examine associations between age of onset of cannabis use and three educational outcomes.

- Completing High School
- Entering University
- Attaining a degree

These outcomes were chosen because they represented clearly defined educational milestones that had been measured in similar ways by all studies.

Unadjusted Odds Ratios Between Age of Onset of Cannabis Use and High School Completion

| Study | Age of Onset of Cannabis Use | | | p |
|-----------------|------------------------------|-------|-----------------|-------|
| | <15 years | 15-17 | Never Before 18 | |
| CHDS | 1 | 2.0 | 4.1 | <.001 |
| VAHCS | 1 | 1.6 | 2.4 | <.001 |
| MUSP | 1 | 2.0 | 4.1 | <.001 |
| Pooled Estimate | 1 | 1.9 | 3.6 | <.001 |

There was consistent evidence across studies to support the view that increasing age of the onset of cannabis use was associated in corresponding increases in high school achievement.

Adjustments for Confounding Factors

All studies had access to extensive data on social and related factors prior to age 15. These covariates varied from study to study but spanned socio-economic background, early educational achievement, behavioural adjustment, mental health and similar measures.

These covariates were used to obtain, for each study, estimates of the adjusted ORs between cannabis use and high school completion.

Adjusted Odds Ratios Between Age of Onset of Cannabis Use and High School Completion

| Study | Age of Onset of Cannabis Use | | | p |
|-----------------|------------------------------|-------|-----------------|-------|
| | <15 years | 15-17 | Never Before 18 | |
| CHDS | 1 | 1.9 | 3.7 | <.001 |
| VAHCS | 1 | 1.3 | 1.7 | <.05 |
| MUSP | 1 | 1.9 | 3.6 | <.001 |
| Pooled Estimate | 1 | 1.7 | 2.9 | <.001 |

Even following extensive adjustment for confounding factors, increasing age of use of cannabis was associated with increased academic achievement.

Pooled Estimates of Adjusted Odds Ratios for all Outcomes

| Outcome | Age of Onset of Cannabis Use | | | p |
|------------------------------|------------------------------|-------|--------------------|-------|
| | <15 years | 15-17 | Never Before 18 | |
| High School Completion | 1 | 1.7 | 2.9 | <.001 |
| University Enrolment | 1 | 1.4 | 1.9 | <.001 |
| University Degree Attainment | 1 | 1.6 | 2.5 | <.001 |

Even following extensive adjustment for confounding factors, increasing age of use of cannabis was associated with increased academic achievement.

Estimated Population Attributable Risks

| Outcome | PAR |
|---------------------------------------|------------|
| Failure to complete High School | 17% |
| Failure to enter University | 5% |
| Failure to attain a University degree | 3% |

Early cannabis use makes a quite substantial contribution to failure to complete high school but makes relatively small contributions to failure to attend University or obtain a degree.

Overall Conclusions

There is generally consistent evidence from all Australasian Cohort Studies that increasing age of onset of cannabis use is associated with improved educational achievement.

These associations cannot be explained by confounding factors.

Cannabis makes its greatest contribution to High School completion and lesser contribution to entering University and degree completion.

Interpretation of Findings

Results are consistent with three conclusions:

- a) The early use of cannabis, by various routes, acts to impair educational achievement.
- b) Limited educational achievement increases the chance of early cannabis use.
- c) The findings can be explained by unmeasured confounding factors.

The weight of the evidence suggests that a) is the most likely conclusion.

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