

Cannabis use and youth development

Dr. Janni Leung
National Centre For Youth Substance Use Research (NCYSUR)
The University of Queensland, Australia

1

Acknowledgment of Country

The University of Queensland (UQ) acknowledges the Traditional Owners and their custodianship of the lands on which we meet.

We pay our respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.

We recognise their valuable contributions to Australian and global society.



2

Reference:
Hall, W., Leung, J. and Lynskey, M., 2020.

The Effects of Cannabis Use on the Development of Adolescents and Young Adults.

Annual Review of Developmental Psychology, 2, pp.461-483.



3

Acute effects

7

7

Acute effects

Hospital or emergencies presentations

- Herbal cannabis -> no reports of overdoses in epidemiological literature
- Recent reports of cardiovascular deaths in young men
- Cannabinoid hyperemesis syndrome

Psychological

- Anxiety
- Paranoia
- Psychotic-like experiences
- Thoughts of self-harm or suicide

8

8

Accidents and injuries

Laboratory studies showed, THC impairs:

- Reaction time
- Information processing
- Perceptual-motor coordination
- Motor performance
- Attention and tracking

Systematic reviews and meta-analyses reported:

- 1.5 to 3 times higher risk of motor vehicle accidents and injuries

9

9

Cannabis dependence

People who use cannabis develop tolerance to THC.

Epidemiological studies found:

- 1 in 10 of people who used cannabis developed cannabis dependence
- 1 in 3 among those who used cannabis daily or near daily

Those who seek help for controlling their use often report:

- Anxiety, insomnia, appetite disturbance, depression

Cannabis dependence impair everyday functioning and present an obstacle to abstinence

- In USA, cannabis is 3rd most common drug of concern after alcohol and opioids in alcohol and drug treatment services admissions

10

10

Cognition, education, other drug use

11

11

Cognition

- Neuroimaging studies found that adolescents who used cannabis regularly had differences in specific brain regions.
- Case-control studies found that adolescents who used cannabis had impaired cognitive performances.
- Epidemiological and twin studies found a decline in IQ among people who used cannabis.

There was evidence of cognitive recovery with abstinence in some studies.

12

12

Cognition

Differences in brain structure and poorer cognitive performance may:

- precede cannabis use
- increase the risk of early and regular cannabis use

Young people with poorer cognitive ability more likely to:

- start using cannabis at an early age
- use regularly and continue to use into adulthood

Daily or near daily cannabis use:

- Impairs youth's cognitive abilities
- Deficits in daily life performance

Longitudinal studies found that the relationship between cannabis and poor cognitive performance persists after adjustment for differences in baseline cognitive performance.

13

13

Cognition

Cognitive performance often improves after abstinence from cannabis use.

People who use cannabis regularly are cognitively impaired when they are using cannabis regularly.

However, many adolescents who used cannabis regularly into adulthood find it difficult to quit.

Daily cannabis use during youth may have already affected their education and occupational opportunities.

14

14

Education

- Is cannabis use a contributory cause of poor school performance?
- Are young people at high risk of poor educational attainment more likely to become regular cannabis users?
- Are regular cannabis use and poor educational attainment the result of common causes?

These possibilities need not be mutually exclusive

15

15

Education

Systematic review of longitudinal studies found:

- Adolescent cannabis use associated with poor educational attainment
 - The relationship attenuated after controlling for confounders
 - Mixed findings
- Cannabis use associated with early school dropout
- Early cannabis use associated with school dropout
 - Youth who used before age 18 were
 - 2.5-4 times more likely to dropout of high school
 - 2-3 times less likely to go to university
 - 3-4.5 times less likely to obtain a university degree

16

Education

Twin studies found:

- No differences in school leaving between twins who did and did not use cannabis.

There are likely shared genetic and environmental risk factors for early cannabis use and poor educational attainment.

A plausible hypothesis is that poorer educational performance increases the risk of cannabis use, and cannabis use impairs educational outcomes.

17

Other drug use

Epidemiological studies in the 1970s and 1980s found:

- People who use cannabis regularly more likely to use heroin and cocaine
- More likely the younger a person was when they first used cannabis

Potential explanations

- 1) People who use cannabis have more opportunities to obtain other illicit drugs from the same black market that provided their cannabis
- 2) Those who use cannabis early were more likely to use other illicit drugs for reasons that are unrelated to their cannabis use
- 3) The pharmacological effects of cannabis increased a young person's propensity to use other illicit drugs

18

Other drug use

More recent international data suggest:

- Order for use of cannabis and other drugs varies by prevalence and access

Recent USA studies found that:

- Youth who use cannabis at an early age report more opportunities to use cocaine later
- Modelling studies support the shared risk factors explanation
- E.g. Delinquent behaviour predicted multiple substance use, regardless of which one was used first

Twin studies:

- Not fully explained away by genetic vulnerability
- The Twin who used cannabis was more likely to use other drugs

19

19

Psychological consequences

20

20

Psychosis

Regular cannabis use:

- 2-4 times higher odds of psychotic symptoms or psychotic disorders
- Higher risk with earlier age of use

Young persons with a first episode of psychosis who stop using have better clinical outcomes

21

21

Depression

Longitudinal studies reported:

- Cannabis use associated with a modest increase risk of depression
- <1.5 times higher odds

22

22

Depression

Longitudinal studies reported:

- Cannabis use associated with a modest increase risk of depression
- <1.5 times higher odds

23

23

Anxiety

Epidemiological studies: mixed findings

Systematic reviews found:

- Cannabis use was not associated with the development of anxiety disorders after adjusting for confounders
- Social anxiety disorders associated with cannabis use, but mixed results for generalized anxiety disorders
- Another review found increased risk of anxiety

Bidirectional effect?

24

24

Bipolar

Systematic reviews found:

- People who use cannabis had more manic symptoms at follow-up
- Persons with bipolar who continue to use cannabis have more manic episodes
- Cannabis use associated with poor outcomes of bipolar disorders
- Cannabis use at younger age associated with more severe bipolar symptoms
- People who use cannabis had higher risk of bipolar later in life
- Higher risk with more regular use
- Existing studies have not comprehensively examined reverse causation

25

25

Suicidality

Case-control studies found:

- Mixed results for any cannabis use
- Weekly or more frequent use
- Mixed results by gender

Systematic reviews found:

- Cannabis use during adolescence:
 - 1.5-2.5 times for suicidal ideation
 - 3.5 times for suicidal attempts
 - Higher risk associated with heavy use

26

26

Antisocial behaviour

- Illegality: criminal record
- Easier to obtain without criminal offences than other drugs
- Cannabis dealing to fund their use
- Violence: less or more?

Systematic reviews observed:

- In persons with psychosis, cannabis associated with increased risk of violence
- Could not exclude the possibility that they were prone to violence to begin with

27

27

Observations regarding cannabis legalization so far

28

28

Cannabis legalization

Household surveys

- People who were using used more
- Mixed results for changes in overall prevalence

Road crash data

- Increased THC detected in fatalities
- Increased in cannabis-related accidents or increased testing

29

29

Cannabis legalization

Observations so far:

- Reduced prices
- Increase potency
- Increased sales of potent products

Adverse effects of the use of more potent products

- High THC products associated with:
 - Cannabis dependence
 - Mental health
- Some argue that people could simply use less of more potent products

30

30

Cannabis legalization

Reducing cannabis-related harms after legalization

- Taxes and regulations to discourage heavy use
- Limit retail outlets and advertising
- Education on harms
- Discourage adolescents from initiating use
- Improve access to treatment
- Deter driving while impaired

31

GERREFW\$WI\$ERH\$ SYXL\$HIZIPSTQ IRX

Egyd\$jjigw
Lwvmej\$rh\$iq ivkirgmv\$
tvwirxexw

Egghirw\$rh\$nywiv
Q ssevdilng\$egghirw

Gerrefw\$itirhirgi
Srh\$4\$kliv\$woc\$ m\$y sv\$
jduyir\$wiv

Gekrww\$rh\$nygerer
Ewsgmoh\$ m\$ q swwih
gskrmz\$iv\$vg ergi\$rh\$nygerer\$yrgaq iw

S\$iv\$nyk\$wi
Ewsgmoh\$ m\$rh\$iv\$nyk\$wiv\$
fyv\$ e)\$itirhir\$eggiw

Q irng\$iepd
Ewsgmoh\$ m\$w)glaw\$rh\$nygerer\$w\$yq i\$wsgmexwv\$
(m\$rh\$iv\$wv\$rh\$ m\$)q\$nt\$agv\$ m\$y n\$ih\$nyv\$w\$wsgmoh\$
(m\$rh\$wsgv\$il\$w\$y\$rh\$nygerer\$it\$istp\$ m\$w)glaww

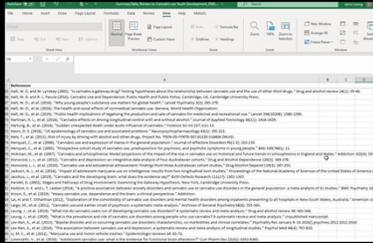
Pikem\$exer
Mgdv\$ih\$eggiw\$w\$y\$ sv\$rh\$ix\$rh\$
gletiv\$nyv\$w\$it\$ih\$w\$nygerer\$
)yvd\$wiv\$e\$iv\$iz\$itirhirgi

32

Hand out of
summary
table

33

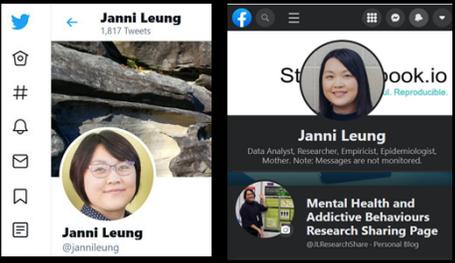
Hand out list of references



34

34

Thank you!



Centre website: <https://ncysur.centre.uq.edu.au/>

35

35