Canadian
Consortium for
Early Intervention
in Psychosis

Comorbid Substance Use

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Methamphetamine Induced Psychosis

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Disclosures

Dr David Crockford:

- No relationships with financial interest or conflicts to disclose

Territorial Acknowledgement

The University of Calgary, located in the heart of Southern Alberta, both acknowledges and pays tribute to the traditional territories of the peoples of Treaty 7, which include the Blackfoot Confederacy (comprised of the Siksika, the Piikani, and the Kainai First Nations), the Tsuut'ina First Nation, and the Stoney Nakoda (including Chiniki, Bearspaw, and Goodstoney First Nations). The City of Calgary is also home to the Métis Nation of Alberta Region 3.

Learning Objectives

After participating in this session, participants will be better able to;

- Know the current epidemiology for methamphetamine use
- Differentiate methamphetamine induced psychosis from a primary psychotic disorder
- Manage methamphetamine induced psychosis

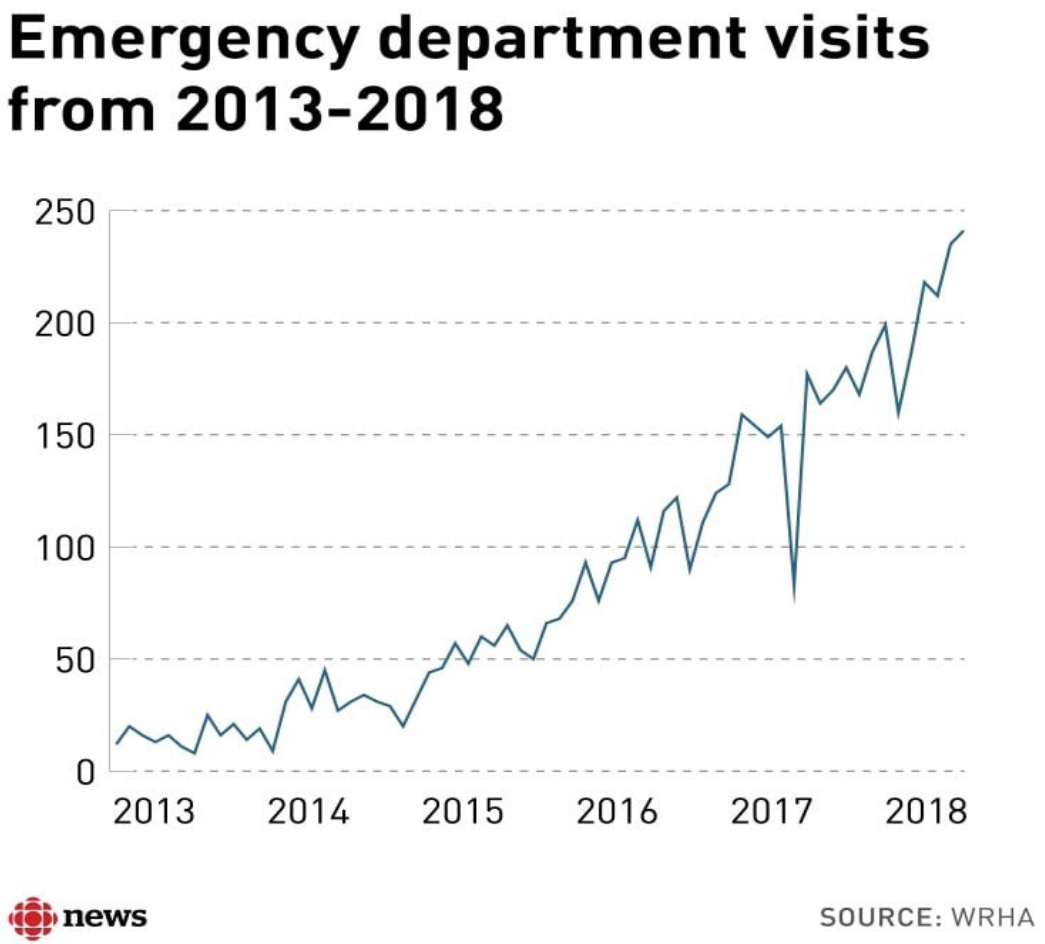
Epidemiology

- CTADS 2017
  - 3.7% of Canadians (15+) have used methamphetamine in their lifetime (Men 5.4%, Women 2.2%)
  - 0.2% of Canadians (15+) used methamphetamine in the last year
  - Marked variations between jurisdictions
  - Problematic use concentrated among populations under-represented in national surveys
- National Report of the First Nations Regional Health Survey 2015-16
  - 1.2% past year use (18+)
- Population groups with potentially higher use rates:

Homeless / street involved	Opioid use disorder
Same sex involvement	Indigenous

Average Number of ER Visits in Winnipeg Related to Methamphetamine use up 1200%

from 15/mo in 2013 to 207/mo in 2018



Case

24yo male brought to ED due to agitated and threatening behavior downtown.

- Police found him waving a knife in a downtown restaurant screaming about Hell's Angels trying to kill him
- Pacing in room, pawing at air, talking to himself
- Mild tachycardia, mild hypertension
- Excoriations on arms, very poor self care

Case (Continued)

- He states the Hell's Angels are attempting to murder him!
  - He unwittingly insulted a gang member and now they are tracking him down using cell phone technology to kill him
- In the restaurant he heard their plans to kill him over the music system which was also broadcasting his thoughts
- Thought form linear, speech rapid, easily agitated
- Not oriented to time
- Reports he last used methamphetamine 12-48h ago

Methamphetamine (MA) Induced Psychosis

- Estimated to affect 26-46% of methamphetamine users
  - 15-23% MA users community samples
  - Up to 60% MA users in treatment settings
- ↑ Risk for Psychosis:
  - ↑ Duration of use
  - ↑ Amount of MA
  - ↑ Frequency of use
  - Prior Psychotic Illness
  - Family History Psychosis
  - Polysubstance use (especially EtOH, cannabis)

↑ Severity of MA use

Grant et al. *J Neuroimmune Pharmacol 2012;7*(1):113–39
Lecomte et al. *Psychiatry Res* 2018;*268*:189–92.
Arunogiri et al. *Australian NZ J Psychiatry 2018;52*(6): 514–29.
Kendler et al (2019). *Am J Psychiatry* 2019;*176*(9):711–19.

METH INDUCED PSYCHOSIS

- Tactile or Visual Hallucinations
- Highly agitated/manic like presentation
- Stereotypies, tweaking, choreiform movements
- Stigmata of MA use
- Predominantly paranoid delusions
- Abrupt onset

PRIMARY PSYCHOSIS

- Typical Auditory Hallucinations
- Negative Symptoms
- Perplexity or persistent thought disorder
- Non-persecutory Delusions
- Insidious onset

Other Clues

- Precox experience – lack of affect and trouble relating
- The thousand mile stare
- You get confused
- Prominent denial, guardedness
- Psychosocial decline timed to psychotic symptoms
- Collateral
- Consistent presentation

Case

- Primarily persecutory delusions
- Highly agitated
- Excoriations (Tactile Hallucinations)
- Pawing at the air (Visual Hallucinations)
- Disorientation

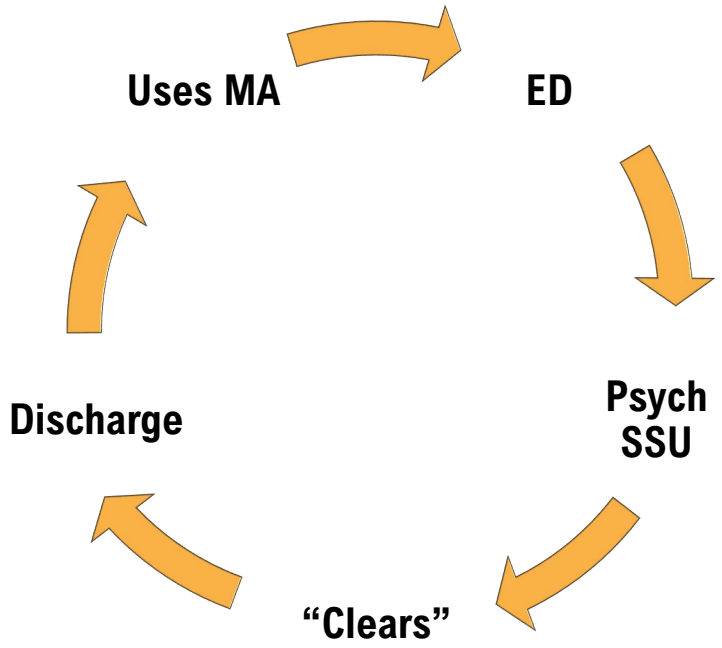
Likely Meth Induced Psychosis

Diagnostic Instability with Co-Existing SUDs

- 29-50% of people diagnosed with brief or drug induced psychoses later receive a diagnosis of schizophrenia
  - Persistent drug use disorders increase likelihood of revision of diagnosis to drug induced
  - Cannabis and stimulant use disorders increase likelihood of progression to schizophrenia diagnosis (cannabis > stimulants)
- Challenges:
  - Reluctance to disclose psychotic symptoms
  - Attribution of psychotic symptoms to substance use
  - Reluctance to disclose substance use

Sara GE et al. J Clin Psychiatry 2014;75:349-356
Arendt et al. Arch Gen Psychiatry 2008;65:388-398
Niel-Pynttari et al. J Clin Psychiatry 2013:74:e94-e99
Kendler et al (2019). *Am J Psychiatry* 2019;*176*(9):711–19

The Unfortunate Usual Course



Critical need to involve in addiction treatment!

- Engagement & Persuasion
- Active Treatment
- Relapse Prevention

Goals of Treatment

- Resolution of psychotic symptoms
- Progressive reduction of use aiming for abstinence
- Functional improvement
- Retention in & adherence to treatment

NIDA. Principles of Drug Addiction Treatment: A Research Based Guide 1999;NIH Publication 99-4180:1-3
Simpson DD et al. Psychol Addict Behav 1997;11:294-301

Treatment Elements

- Focus on reduction/resolution of psychotic symptoms
- Optimize structure
  - Better outcomes with initial bed-based treatment
  - Housing first
- Building therapeutic alliance will take time
  - Culturally appropriate services, trauma informed
- Engage family / support network if available
- Psychoeducation around symptoms and use
- Try to find common goals for recovery
  - Carrot rather than stick

Treatment Elements

- Positively reinforce reductions in use or abstinence
  - Ask what they have noticed with decreased use
  - Commend efforts and note visible changes
- Avoid confrontation – try to see it from their view
- Brief frequent visits with focus on 1-2 key messages
- Relapse prevention needs to be instituted early
  - Housing, treatment site away from use areas, peer navigators
- Help to potentially limit access to funds
- Harm reduction
  - OAT, smoking instead of injecting

Pharmacological Management of Agitation due to Methamphetamine

- 1st line: benzodiazepines
  - Lorazepam 2mg SL or PO q15min x 2
  - Diazepam 5mg PO q15min x 2
  - Midazolam 5mg IM q3-5min
- 2nd line: atypical antipsychotics
  - Olanzapine 5-10mg po
  - Risperidone 2mg po
- 3rd line: typical antipsychotics
  - Haloperidol 2-10mg IM/po
- 4th line: ketamine or midazolam IV

Methamphetamine Induced Psychosis

- Most resolve with abstinence within 1 week
  - Pharmacology for acute agitation
  - Benzodiazepines preferred agents if comorbid opioid use not suspected
  - Atypical antipsychotics added as adjuvant treatment
- If persistent psychotic symptoms:
  - Review diagnosis
  - Involve a dual diagnosis capable / enhanced service
  - Atypical antipsychotics

Treatment Setting

- Integrated substance use and psychosis treatment superior to parallel or sequential treatment
- Ideally utilize a specialized concurrent disorder program if available, but otherwise best treatment in a specialized psychosis treatment program
  - However, methamphetamine using patients may do better in addiction treatment settings first

Brunette & Mueser. J Clin Psychiatry 2006;67(suppl7):10-17
Drake RE et al. J Subst Abuse treat 2008;34:123-138
Crockford D, Addington D. The Canadian Schizophrenia Guidelines: Schizophrenia and Other Psychotic Disorders with Coexisting Substance Use Disorders. Can J Psychiatry 2017;62(9):624-634.

What Is the Optimal Treatment Duration for New Onset Psychosis?

- For persons with potentially substance-induced psychoses that do not resolve rapidly with abstinence, it is not clear what is the most appropriate duration of antipsychotic treatment.
- Follow the guidelines for a 1st episode of psychosis involving 18 months on an antipsychotic, especially if there are risk factors for persistent psychosis present (high conversion rates).
- Who may be able to come off? Potential indicators:
    - Full remission of positive and negative symptoms
    - Identifiable precipitating cause
    - Lack of cognitive deficits
    - Good insight
    - Available supports
    - Short DUP and short time to full treatment response
    - Lack of family history

Crockford D, Addington D. The Canadian Schizophrenia Guidelines: Schizophrenia and Other Psychotic Disorders with Coexisting Substance Use Disorders. Can J Psychiatry 2017;62(9):624-634.

Antipsychotics

- Atypicals > Typicals
- Lower doses may be necessary!
- Few randomized controlled trials in co-morbid disorders: studies are case series, retrospective or open label
- For psychosis + SUD, best data for clozapine
  - Retrospective, selection bias
- For psychosis – choose the agent most likely to be accepted and best treats the psychotic disorder
- Atypical LAIs – better for those with limited support networks, stimulants?

Crockford D, Addington D. Can J Psychiatry 2017;62:624-634
Smelson DA et al. J Substance Abuse Treatment 2004;27:45-49
Reid MS et al. Addiction 2005;100suppl1:43-57 Guardia J et al. Alcohol Clin Exp Res 2004;28:735-745
Kampman KM et al. Drug & Alcohol Dependence 2003;70:265-273
Zimmet SV et al. J Clin Psychopharmachol 2000;20:94-98
Rafizadeh R et al. J Psychopharm 2023
Drake RE et al. Schizophr Bull 2000;26:441-9
Brunette MF et al. Schizophr Bull 2006;32:637-43
Schnell T et al. Am J Addict 2014;23:308-12
Abdel-Baki A et al. Early Interv Psychiatry 2020;14:69-79.

Are Long-Acting Injectable (LAI) Antipsychotics Better Than Oral Antipsychotics?

- Remains an area of debate in the literature
- Probably better for some patients more than others:
  - History of non-adherence / on CTO
  - Limited support networks
  - Marginally housed
  - Minimally engaged
  - Poor insight
  - High risk for aggression/violence
- Experience seems to be that even on an LAI, however, people still get psychotic with methamphetamine use

Medication Pearls

- No antipsychotic medication better than another, just different side effect profiles
- Antipsychotics do not treat substance use disorders!
- Monotherapy (generally)
- Lowest effective dose
- 2-4 weeks for clinical benefit to emerge
  - “It all is still happening, but it doesn’t seem to bother me as much now”
  - “It definitely was happening before, but for some reason it isn’t happening anymore now.”
- Target symptoms (ie: sleep, agitation)

Neuropsychological Effects of Chronic Stimulant Use (DA Deficit State)

- Decreased episodic memory & learning – deficient executive aspects of encoding & retrieval (frontostriatal)
- Decreased cognitive set shifting & response inhibition (frontal)
- Impulsive choices (medial frontal)
- Slowed information processing speed (striatal)
- Impaired attention, working memory (ACC, DLPFC)
- Unclear if duration & severity of use correlates with findings, neurotoxicity?
- Symptoms persist with complete abstinence for up to 9 months with inhibition and episodic memory last to recover (if it occurs)

Psychostimulants for Harm Reduction or ADHD in Persons with Psychosis?

- Cannabis and stimulants a nasty combination
- Trials of Bupropion (6), Methylphenidate (6), Modafinil (3), and Dextroamphetamine (2)
  - No effect on treatment retention or abstinence rates
  - Minimal short-term reductions in use
  - High drop out rates (>50%)
- Psychostimulants worsen psychosis, therefore avoid if stimulant induced psychosis or primary psychotic disorder
- 40% re-hospitalization rate after psychosis if prescribed stimulants

Bhatt M et al. Systematic Reviews 2016;5:189
Pérez-Mañá C et al. Cochrane Database Syst Rev 2013;(9):CD009695.
Siefried KJ et al. CNS Drugs 2020;34(4):337-365.
Ward B et al. Can J Addict 2022;13(4):6-12
Cressman AM et al. J Clin Psychopharmacol. 2015 Dec;35(6):667-71

Other Pharmacologic Agents Tried Without Benefit for Stimulant Use Disorders

- Antidepressants – Bupropion, Mirtazapine, Sertraline
- Anticonvulsants – Topiramate, Gabapentin
- Naltrexone
- Baclofen
- Ondansetron
- Rivastigmine, Selegiline

Hartel-Petri R et al. Pharmacopsychiatry 2017;50(3):96-104
Courtney KE, Ray LA. Drug Alcohol Depend 2014;143:11-21

Psychosocial Treatments of Benefit

- CBT / Relapse Prevention
- Matrix Model: CBT (Individual and Group), Psychoeducation for patient and family
  - Focuses on relapse prevention skills:
    - drug avoidance
    - identification of triggers
    - drug refusal skills
- Contingency Management
- MI / Brief Interventions – limited evidence

Glasner-Edwards S, Mooney LJ. CNS Drugs 2014;28:1115-1126
Radfar SR, Rawson RA. Addict Health 2014;6:146-153
Cortney KE, Ray LA. Drug Alcohol Depend 2014;143:11-21
DiClemente CC et al. Psychol Addict Behav 2017;31:862-887

Conclusions

- Psychotic symptoms occur in up to 40% of methamphetamine users
- Methamphetamine agitation best managed in ER with either atypical antipsychotics or benzodiazepines
- Most methamphetamine induced psychoses resolve with abstinence alone in about a week
- For persistent psychotic symptoms, review the diagnosis, treat with an atypical antipsychotic, and ensure engagement in concurrent addiction and psychosis services
- Utilize CBT / relapse prevention approaches focusing on drug avoidance, identification of triggers, and drug refusal skills

LRCUG-PSYCH

Didier Jutras-Aswad, MD, MSc, FRCPC, DRCPSC

Disclosures

Dr Didier Jutras-Aswad:

- I received investigational products from Cardiol Therapeutics and Exka (2022-24) for clinical trials funded by the Quebec Ministry of Health and Social Services.
- In the last 36 months I have received grants/contracts funding for substance use-related research from public and governmental agencies and I have expert-consulted on substance and mental health related issues with public/government agencies. I am a Board member of the Mental Health Commission of Canada and of the CHUM Foundation.

Acknowledgement

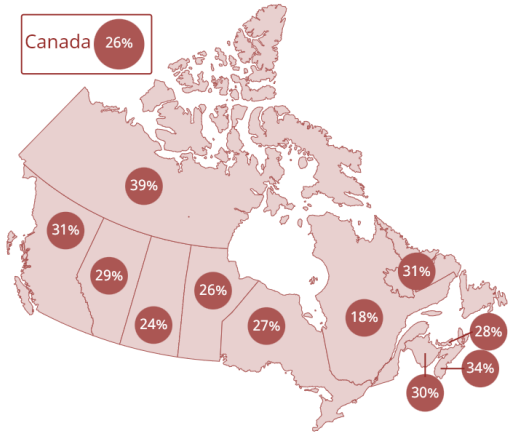
I would like to acknowledge that I live and work in Tiohtià:ke/Montréal on unceded territories of the Kanien’kehá:ka Nation. Many of my research activities take place on the traditional, unceded, and continually occupied lands of many First Nations across what is now known as Canada.

Learning Objectives

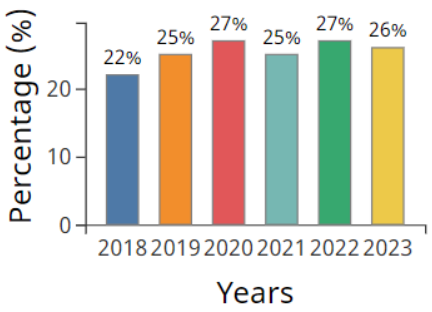
After participating in this session, participants will be better able to;

- Discuss the relevance of approaches to decrease risk of cannabis-related harms in people with psychosis
- Know about existing initiatives and tools aimed at reducing cannabis-related risk of harms
- Apply some strategies to decrease risk of cannabis-related harms in people with psychosis

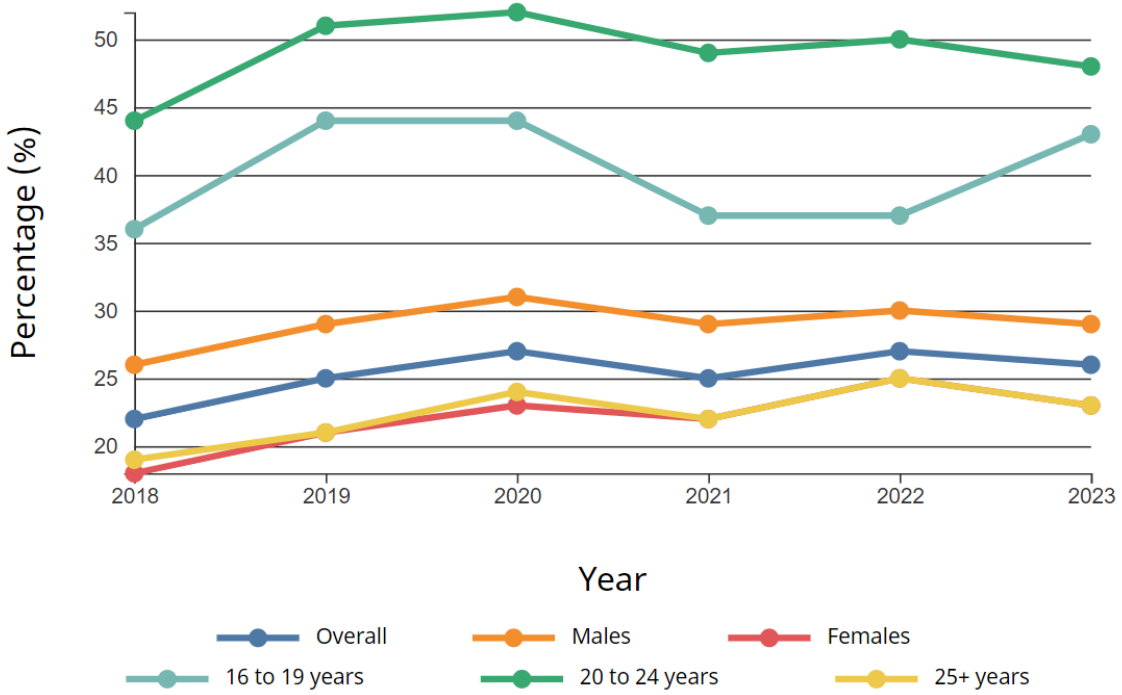
After 5 years - Canadian Cannabis Survey



Increased from 22% in 2018 to 26% in 2023 and unchanged between 2022 (27%) and 2023 (26%).



Cannabis use in the past 12 months 2018 to 2023 based on CCSs



Canadian Cannabis Survey. Cannabis use for non-medical purposes among Canadians (aged 16+). Ottawa: Health Canada; January 2024. Retrieved on Infobase Canada June 6th, 2024

After 5 years

Commentary

Outcomes associated with nonmedical cannabis legalization policy in Canada: taking stock at the 5-year mark

Benedikt Fischer PhD, Didier Jutras-Aswad MD MSc, Wayne Hall PhD

■ Cite as: *CMAJ* 2023 October 10;195:E1351-3. doi: 10.1503/cmaj.230808

In October 2018, Canada was the first G-20 nation to implement the legalization of nonmedical cannabis use and supply for adults.[1] Cannabis legalization in Canada had the primary objectives of improving cannabis-related public health and safety; reducing youth access to cannabis; and reducing cannabis-related crime and illegal markets, mainly by allowing adult cannabis use and related behaviours as a legal, regulated activity. We discuss whether, 5 years on, these objectives have been met, drawing on systematic reviews and recent primary studies for our observations.[1–3]

The Canadian legalization framework comprises a federal law (*Cannabis Act*) and related regulations, some of which are subject to provincial refinements. Some of the main parameters of legal cannabis use and access are a personal possession limit of 30 g of dried cannabis (or equivalents) in public by adults (with a minimum age of 18–21 yr, depending on the province); restricting use to nonpublic settings (in most provinces); incremental retail sale of flower, extracts or liquids, and ingestible cannabis products; cannabis sales by commercial or public retail systems (or both, in some provinces) and via the Internet; limited home cultivation (in most provinces); and national *per se* law– and threshold-based restrictions of cannabis-impaired driving.

National survey data monitoring cannabis usage before and after cannabis legalization showed an increase in the prevalence of cannabis use (from 22% in 2017 to 27% in 2022), although rates of near-daily to daily use remained relatively stable (24%–25%).[4] In contrast, significant increases in the prevalence of cannabis use (adjusted odds ratio [OR] 1.62, 95% confidence interval [CI] 1.40–1.86), daily cannabis use (adjusted OR 1.59, 95% CI 1.21–2.07) and cannabis use–related problems (adjusted OR 1.53, 95% CI 1.20–1.95) from 2001 to 2019 were shown in a study of the Ontario adult population.[5] The prevalence of cannabis use among youth (30%–50%, depending on the survey) and perceived access to cannabis by minors have remained mostly stable at the high levels observed before legalization.[1,4]

Studies have mostly shown increased cannabis-related emergency department presentations and admissions to hospital over the course of legalization. For example, a time-series analysis found a 20.0% (95% CI 6.2%–33.9%) increase in emergency department presentations for cannabis-related disorders and poisonings among youth in Ontario and Alberta.[6] One population-based study in Ontario found a 12%–22% increase in cannabis-attributable adult emergency department visits since legalization to May 2021.[7] Other Ontario studies have shown a 13-fold increase (0.26/100 000 people to 3.43/100 000 people) in monthly rates of emergency department presentations for cannabis hyperemesis syndrome, an increase in rates of emergency department visits for cannabis-induced psychosis (incidence rate ratio 1.30, 95% CI 1.02–1.66) and a near doubling (11.0/100 000 people to 20.0/100 000 people) in acute episodes of pregnancy care in which cannabis was present, predominantly associated with legalization's commercialization phase in Ontario (from March 2020 onward).[8–10] A recent repeated cross-sectional study reported an almost threefold increase in rates of emergency

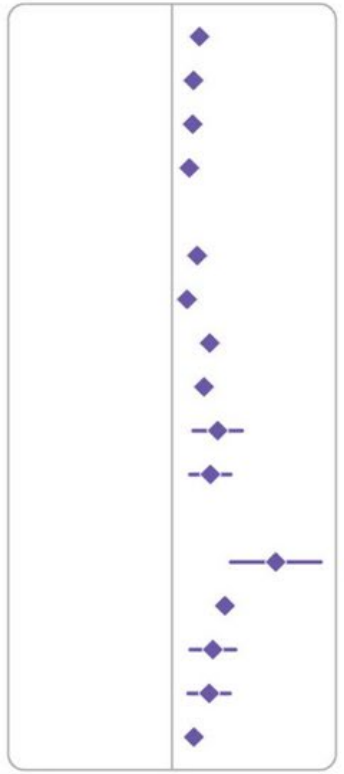
Key points

- In October 2018, recreational use of cannabis was legalized in Canada with the primary objectives of improving cannabis-related public health and safety, reducing youth access to cannabis, and reducing cannabis-related crime and illegal markets.
- Five years after policy implementation, available evidence suggests that outcomes related to health — such as the prevalence of cannabis use, cannabis-related emergency department visits and admissions to hospital and cannabis-impaired driving — have mostly increased or remained steady.
- Data on some important health indicators are unavailable.
- Substantial reductions in criminal arrests and charges related to cannabis use — and related stigma and other personal burdens — among both adults and youth should be noted as related positive social justice and possibly indirect public health outcomes.
- Continued measurement of key health and social outcomes, as well as robust ways to integrate diverse data when evaluating policy outcomes, are needed to inform evidence-based adjustments to regulatory parameters that will more effectively serve the declared public health objectives of cannabis legalization in Canada.

- Most public health indicators (consumptions, service use, etc.) are stable or slightly deteriorated
- Sharp benefits in terms of legal burden, social justice and stigmatization
- There is still a need to understand cannabis effects, legalization impacts and to implement better strategies to reduce associated risks

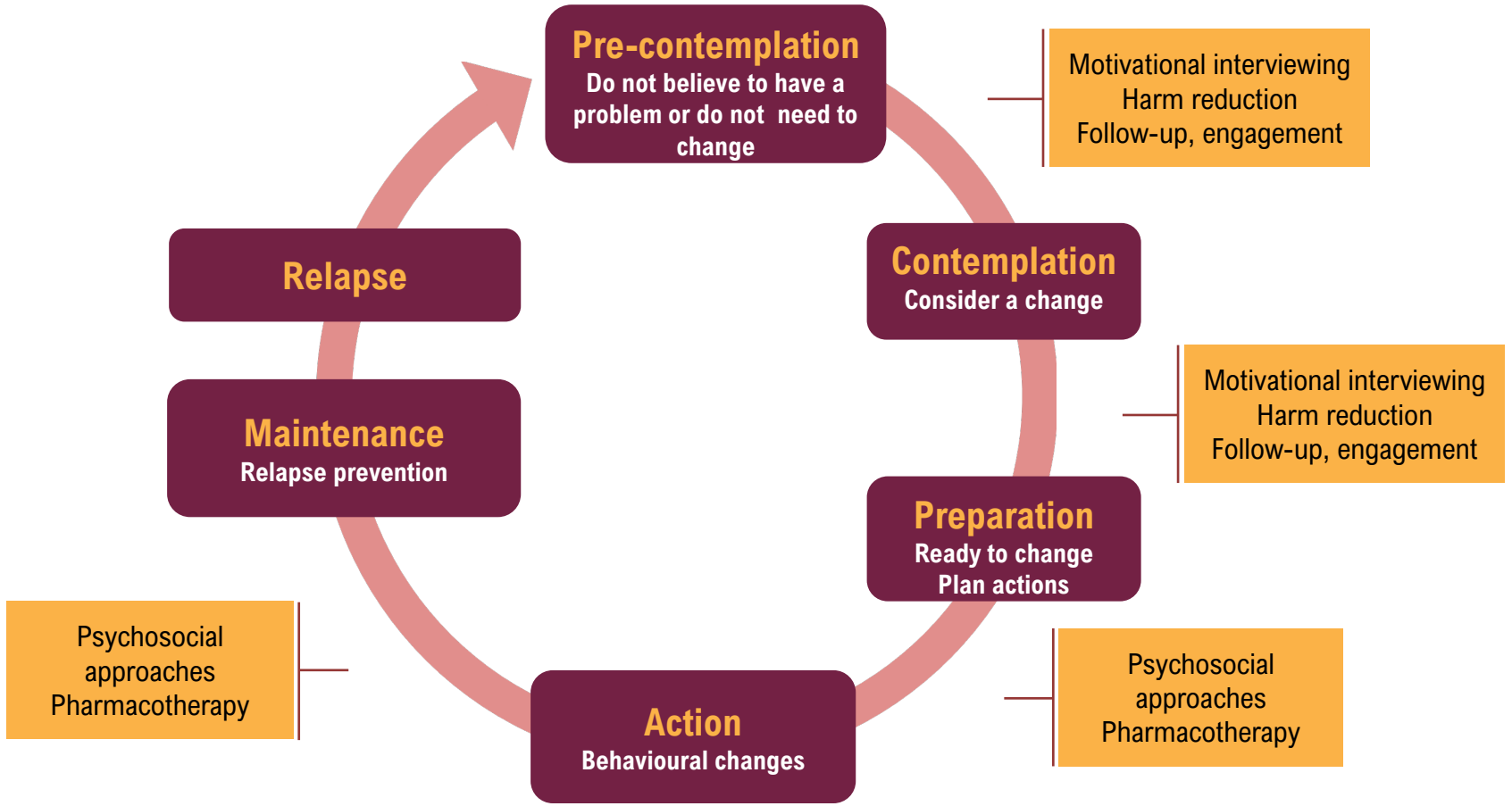
Cannabis and Psychosis Outcomes

Author, year	Cannabinoid specific exposure	Outcome	Studies (k)	Studies n/No	CE/CES	eOR (95% CI)	eOR (95% CI)
Pregnant women							
Marchant 2022	Marijuana use	Small for gestational age	6	2078/22 921	I/I		1.61 (1.41 to 1.83)
Conner 2016	Marijuana use	Low birth weight	12	6204/57 438	I/I		1.43 (1.27 to 1.62)
Marchant 2022	Marijuana use	Neonatal ICU admission	6	1315/18 615	III/III		1.41 (1.15 to 1.71)
Conner 2016	Marijuana use	Pre-term delivery	14	8060/81 326	III/III		1.32 (1.14 to 1.54)
Drivers							
Rogeberg 2019	THC positive	Car crash, culpability	13	NR/78 025	IV/I		1.53 (1.39 to 1.67)
Rogeberg 2019	THC positive	Car crash	13	NR/78 025	IV/I		1.27 (1.21 to 1.34)
Hostiuc 2018	Cannabis use	Car unfavourable traffic events	23	NR/245 021	IV/II		1.89 (1.58 to 2.26)
Hostiuc 2018	Cannabis use	Car death after car crash	5	NR/66 705	IV/II		1.72 (1.40 to 2.10)
Hostiuc 2018	Cannabis use	Car injury	12	NR/95 441	IV/III		2.15 (1.42 to 3.28)
Hostiuc 2018	Cannabis use	Car collision	6	NR/82 875	IV/III		1.91 (1.34 to 2.72)
Psychosis							
Foglia 2017	Cannabis current use	Adherence to antipsychotic treatment	3	NR/259	IV/III		5.78 (2.68 to 12.46)
Foglia 2017	Cannabis any use	Adherence to antipsychotic treatment	11	NR/3055	IV/III		2.46 (1.97 to 3.07)
Bogaty 2018	Cannabis current use	Premorbid IQ	7	NR/515	IV/III		1.99 (1.34 to 2.96)
Schoeler 2016	Cannabis continued use	Psychosis relapse	24	NR/16 257	IV/III		1.88 (1.34 to 2.71)
Schoeler 2016	Cannabis use	Working memory	19	NR/2468	IV/III		1.44 (1.21 to 1.71)



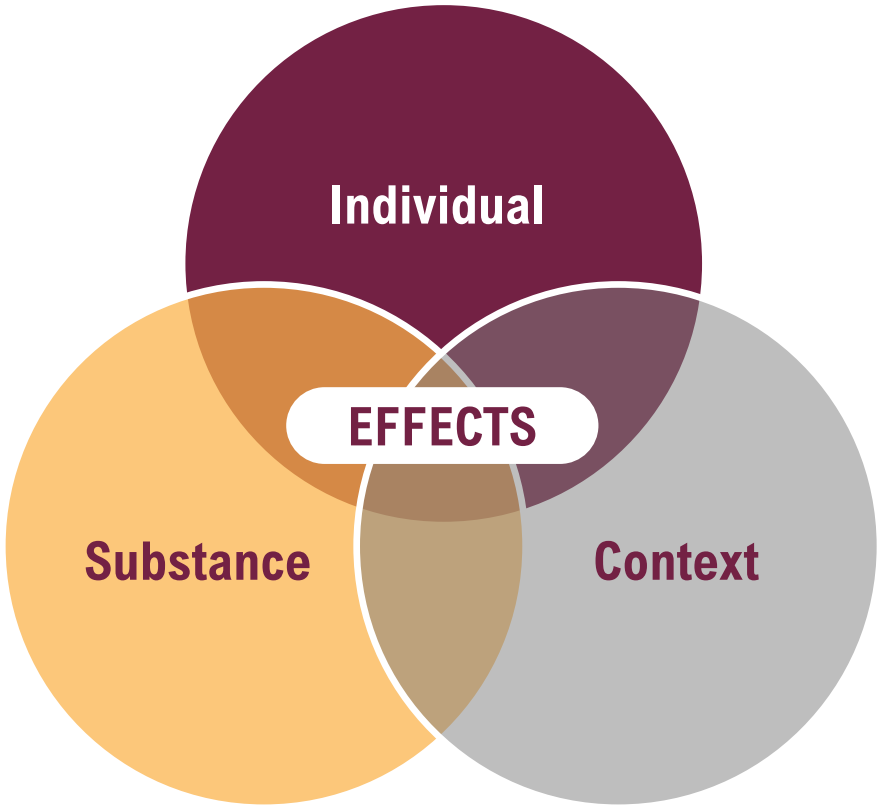
Marco Solmi et al. BMJ 2023; 382:bmj-2022-072348

Cannabis UD Interventions : Overview



Inspired from Prochaska et Di Clemente, 1982

Cannabis and Health



- Cannabis/cannabinoids use

- Cannabinoids content
- Dosage, administration mode
- Duration, intensity and timing
- Individual characteristics
- Underlying conditions
- Expectation and perception towards the substance
- Consumption environnent

- Therapeutic effects
- Health and social adverse events

Cannabis Harm Reduction

- LRCUG: Tool that aims to reduce health risk
- Based on scientific evidences aiming to capture primary modifiable risk factors
- Developed with a public health approach - not specifically designed for individuals with psychiatric disorders
- Updated in 2021

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Review

Lower-Risk Cannabis Use Guidelines (LRCUG) for reducing health harms from non-medical cannabis use: A comprehensive evidence and recommendations update

Benedikt Fischer[a,b,c,*], Tessa Robinson[b,d], Chris Bullen[a,e], Valerie Curran[f,g], Didier Jutras-Aswad[h,i], Maria Elena Medina-Mora[j,k], Rosalie Liccardo Pacula[l], Jürgen Rehm[m,n], Robin Room[o,p], Wim van den Brink[q,r], Wayne Hall[q,t]

Fischer, B. et al. Int J Drug Policy (2021); Fischer B et al., J Dual Diagn (2023)

Endorsements

The LRCUG have been endorsed by the following organizations:

Canadian Mental Health Association — Association canadienne pour la santé mentale — Mental health for all — La santé mentale pour tous

Mental Health Commission of Canada — Commission de la santé mentale du Canada

Canadian Public Health Association — Association canadienne de santé publique

Canadian Nurses Association

Association médicale canadienne — Canadian Medical Association

CSAM SMCA — Canadian Society of Addiction Medicine — La Société Médicale Canadienne sur l'Addiction

camh

Canadian Centre on Substance Use and Addiction — Centre canadien sur les dépendances et l'usage de substances — Evidence. Engagement. Impact. — Données. Engagement. Résultats.

Council of Chief Medical Officers of Health

Acknowledgment

The Lower-Risk Cannabis Use Guidelines (LRCUG) are an evidence-based intervention project by the Canadian Research Initiative in Substance Misuse (CRISM), funded by the Canadian Institutes of Health Research (CIHR).

10 WAYS to Reduce Risks to Your Health When Using Cannabis

Canada's Lower-Risk Cannabis Use Guidelines (LRCUG)

Revised 2018

Reference

Fischer, B., Russell, C., Sabioni, P., van den Brink, W., Le Foll, B., Hall, W., Rehm, J. & Room, R. (2017). Lower-Risk Cannabis Use Guidelines (LRCUG): An evidence-based update. *American Journal of Public Health, 107*(8). DOI: 10.2105/AJPH.2017.303818.

camh — Canadian Research Initiative in Substance Misuse | Initiative canadienne de recherche en abus de substance

The following **10 recommendations** suggest ways to use cannabis more safely, based on the best available scientific evidence.

1. Remember that every form of cannabis use poses risks to your health. **The only way to completely avoid these risks is by choosing not to use cannabis.** If you decide to use cannabis, follow these recommendations to lower risks to your health.

2. The earlier in life you begin using cannabis, the higher your risk of serious health problems. Teenagers, particularly those younger than 16, should delay using cannabis for as long as possible. **You'll lower your risk of cannabis-related health problems if you choose to start using cannabis later in life.**

3. Higher-strength or more powerful cannabis products are worse for your health. If you use products with high tetrahydrocannabinol (THC) content, the main mind-altering ingredient in cannabis, you're more likely to develop severe problems, such as dependence or mental health problems. Cannabidiol (CBD), another cannabis ingredient, can counteract some of THC's psychoactive effects. **If you use, choose low-strength products, such as those with a lower THC content or a higher ratio of CBD to THC.**

4. **Don't use synthetic cannabis products.** Compared with natural cannabis products, most synthetic cannabis products are stronger and more dangerous. K2 and Spice are examples of synthetic cannabis products. Using these can lead to severe health problems, such as seizures, irregular heartbeat, hallucinations and in rare cases, death.

5. **Smoking cannabis (for example, smoking a joint) is the most harmful way of using cannabis because it directly affects your lungs.** There are safer, non-smoking options like vaping or taking edibles that are better for your lungs. Keep in mind that these alternatives aren't risk-free either.

6. **If you choose to smoke cannabis, avoid inhaling deeply or holding your breath.** These practices increase the amount of toxins absorbed by your lungs and the rest of your body, and can lead to lung problems.

7. The more frequently you use cannabis, the more likely you are to develop health problems, especially if you use on a daily or near-daily basis. Limiting your cannabis use to occasional use at most, such as only using once a week or on weekends, is a good way to reduce your health risks. **Try to limit your use as much as possible.**

8. **Cannabis use impairs your ability to drive a car or operate other machinery. Don't engage in these activities after using cannabis, or while you still feel affected by cannabis in any way.** These effects typically last at least six hours, but could be longer, depending on the person and the product used. Using cannabis and alcohol together further increases your impairment. Avoid this combination before driving or operating machinery.

9. Some people are more likely to develop problems from cannabis use. **Specifically, people with a personal or family history of psychosis or substance use problems, and pregnant women should not use cannabis at all.**

10. **Avoid combining any of the risky behaviours described above.** The more risks you take, the greater the chances of harming your health as a result of cannabis use.

Please note: These recommendations are aimed mainly at non-medical cannabis use.

LRCUG-PSYCH

Recommendations to reduce risks of cannabis-related adverse psychosis outcomes

- LRCUG-PSYCH : evidence-based recommendations aligned with public health data, with an emphasis on psychosis
- Conceptual framework is inspired from the LRCUG
- These recommendations aim to provide information to individuals to understand risks linked to their cannabis use and to make safer choices regarding their consumption

Supported by:

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CRISM-ICRAS

Fischer, B. et al. Int J Drug Policy (2021); Fischer B et al., J Dual Diagn (2023)

11 Recommendations to Reduce Risks of Psychosis when Using Cannabis

*** The only way to completely prevent cannabis-related psychosis is to not use cannabis. If you choose to use, the following recommendations can help reduce your psychosis-related risks.**

1 Genetics

Some people are more likely to develop psychosis from cannabis. If you have had psychotic symptoms before, or you have a parent, brother, sister, or child with a psychotic disorder, you should ideally not use cannabis. If you choose to use cannabis, try to reduce how much and how often you use.

2 Age of use

The younger you start using cannabis, the higher the risk of psychosis. Avoid or delay using cannabis when you are in your adolescence. People over the age of 65 should also be cautious and keep the amount of cannabis they use low because of mental health-related risks.

3 Potency

Tetrahydocannabinol (THC) is the main cannabis component that creates the mind-altering experiences of use. It is also the main element responsible for psychosis related outcomes from cannabis. Using cannabis with more cannabidiol (CBD), which is non-intoxicating, may help reduce some of the risks associated to high levels of THC. If you use cannabis, choose products that are low in THC content or with a high CBD-to-THC ratio. Where possible, get your cannabis from a regulated source.

4 Frequency

The more often you use cannabis and your brain is exposed to it, the higher your risk of developing psychotic symptoms. Keeping your cannabis use to once per week or less is a good way of lowering your risks. Overall, try to limit your cannabis use as much as possible.

5 Mode-of-use

Different cannabis products have different risks. Be aware of the particular risks involved with the way you choose to consume cannabis and especially its associated intake of THC.

- → Ingestion (eg. edibles) usually involves lower doses of THC, but delays the onset of cannabis effects for 1-2 hours and makes them last longer, so be careful not to take too much.
- → Products used for inhalation (eg. smoking, vaping, bongs), and especially those that are high in THC can also have higher risks for psychosis.

6 Mixing substances

Avoid mixing cannabis with other substances like alcohol, tobacco, and illicit drugs. This will reduce the risk of cannabis-related psychosis and be better for your overall health.

7 Psychotic conditions

If you have psychosis already, using cannabis can make symptoms and your response to treatment worse. The best course of action is to stop using cannabis, or reduce how much you use as much as possible. Using low-THC and high-CBD cannabis products can also help with reducing risks of continued psychosis symptoms.

8 Medication interactions

Cannabis can interact with psychosis medications and might influence how well the treatment works. If you are being treated for a psychotic disorder, you should reduce or ideally stop using cannabis. If you continue to use cannabis, tell your healthcare provider so that they can find the best treatment for you and adjust if needed.

9 Taking breaks

If you have psychosis and are unable to stop using cannabis altogether, consider reducing how much you use or taking breaks from using (e.g. longer waiting periods between using). The benefits may take some time to appear, but this can improve psychosis symptoms in some instances.

10 Combining at-risk behaviours

Avoid combining multiple risk-factors as mentioned above. The more risks you take (for example, using cannabis that is high in THC often and at a young age) the more your risks of psychosis outcomes increase.

11 Other health problems

Psychosis isn't the only health problem that can be caused by cannabis use. Other risks include dependence, lung and heart problems, injuries from cannabis impairment (e.g., driving-related) and negative effects on pregnancy. To protect your overall health, be mindful of these risks and especially avoid frequent high-dose cannabis use.

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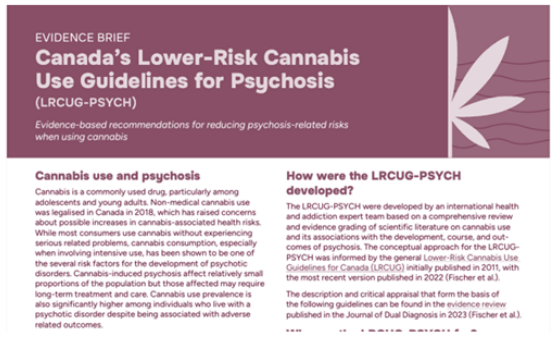
Recommendations for Reducing the Risk of Cannabis Use-Related Adverse Psychosis Outcomes: A Public Mental Health-Oriented Evidence Review

Benedikt Fischer, Wayne Hall, Thiago M. Fidalgo, Eva Hoch, Bernard Le Foll, Maria-Elena Medina-Mora, Jens Reimer, Philip G. Tibbo & Didier Jutras-Aswad

Tools for Clinicians, Healthcare Professionals and Individuals at Risk of Psychosis who Consume Cannabis


EVIDENCE BRIEF

Canada's Lower-Risk Cannabis Use Guidelines for Psychosis
(LRCUG-PSYCH)

Evidence-based recommendations for reducing psychosis-related risks when using cannabis

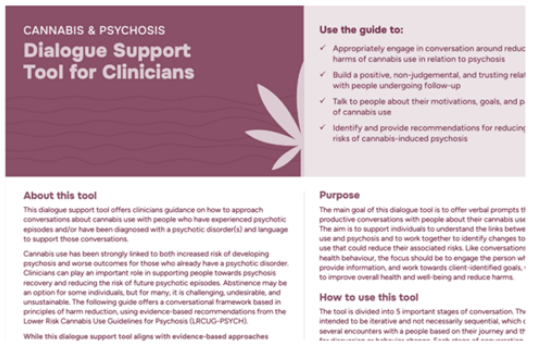
Cannabis use and psychosis

Cannabis is a commonly used drug, particularly among adolescents and young adults. Non-medical cannabis use was legalised in Canada in 2018, which has raised concerns about possible increases in cannabis-associated health risks. While most consumers use cannabis without experiencing serious related problems, cannabis consumption, especially when involving intensive use, has been shown to be one of the several risk factors for the development of psychotic disorders. Cannabis-induced psychosis affect relatively small proportions of the population but those affected may require long-term treatment and care. Cannabis use prevalence is also significantly higher among individuals who live with a psychotic disorder despite being associated with adverse related outcomes.

How were the LRCUG-PSYCH developed?

The LRCUG-PSYCH were developed by an international health and addiction expert team based on a comprehensive review and evidence grading of scientific literature on cannabis use and its associations with the development, course, and outcomes of psychosis. The conceptual approach for the LRCUG-PSYCH was informed by the general Lower-Risk Cannabis Use Guidelines for Canada (LRCUG) initially published in 2011, with the most recent version published in 2022 (Fischer et al.).

The description and critical appraisal that form the basis of the following guidelines can be found in the evidence review published in the Journal of Dual Diagnosis in 2023 (Fischer et al.).


CANNABIS & PSYCHOSIS

Dialogue Support Tool for Clinicians

Use the guide to:

- Appropriately engage in conversation around reduc harms of cannabis use in relation to psychosis
- Build a positive, non-judgemental, and trusting rela with people undergoing follow-up
- Talk to people about their motivations, goals, and p of cannabis use
- Identify and provide recommendations for reducin risks of cannabis-induced psychosis

About this tool

This dialogue support tool offers clinicians guidance on how to approach conversations about cannabis use with people who have experienced psychotic episodes and/or have been diagnosed with a psychotic disorder(s) and language to support those conversations.

Cannabis use has been strongly linked to both increased risk of developing psychosis and worse outcomes for those who already have a psychotic disorder. Clinicians can play an important role in supporting people towards psychosis recovery and reducing the risk of future psychotic episodes. Abstinence may be an option for some individuals, but for many, it is challenging, undesirable, and unsustainable. The following guide offers a conversational framework based in principles of harm reduction, using evidence-based recommendations from the Lower Risk Cannabis Use Guidelines for Psychosis (LRCUG-PSYCH).

While this dialogue support tool aligns with evidence-based approaches

Purpose

The main goal of this dialogue tool is to offer verbal prompts t productive conversations with people about their cannabis use The aim is to support individuals to understand the links betwe use and psychosis and to work together to identify changes to use that could reduce their associated risks. Like conversations health behaviour, the focus should be to engage the person wh provide information, and work towards client-identified goals, to improve overall health and well-being and reduce harms.

How to use this tool

The tool is divided into 5 important stages of conversation. The intended to be iterative and not necessarily sequential, which several encounters with a people based on their journey and t

Scan-me to access different clinical tools

CANNABIS-PSYCHOSE.CA

Using Technology to Improve Implementation of Best Practices

Review

Digital Interventions for Recreational Cannabis Use Among Young Adults: Systematic Review, Meta-Analysis, and Behavior Change Technique Analysis of Randomized Controlled Studies

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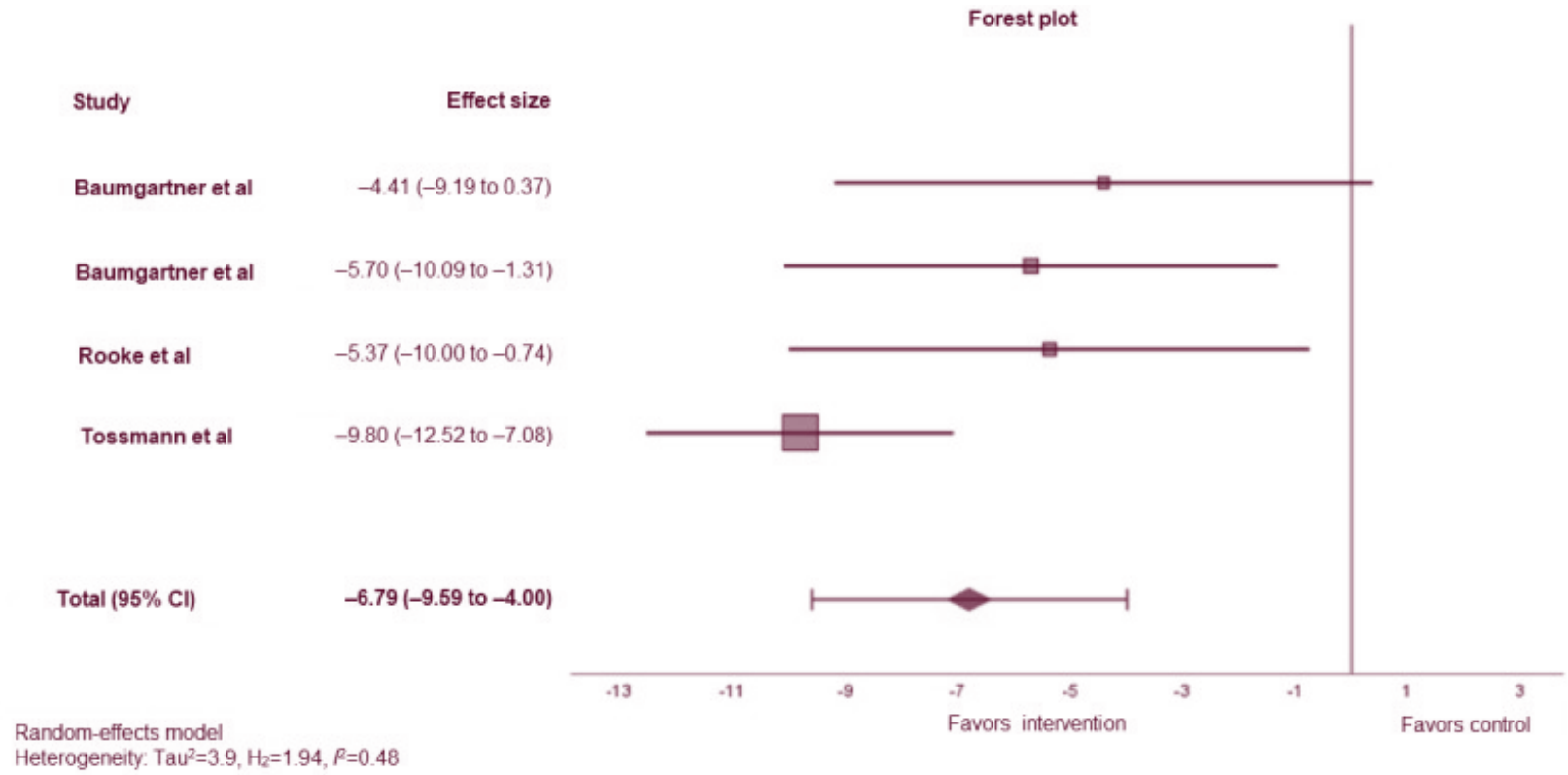
Abstract

Background: The high prevalence of cannabis use among young adults poses substantial global health concerns due to the associated acute and long-term health and psychosocial risks. Digital modalities, including websites, digital platforms, and mobile apps, have emerged as promising tools to enhance the accessibility and availability of evidence-based interventions for young adults for cannabis use. However, existing reviews do not consider young adults specifically, combine cannabis-related outcomes with those of many other substances in their meta-analytical results, and do not solely target interventions for cannabis use.

Objective: We aimed to evaluate the effectiveness and active ingredients of digital interventions designed specifically for cannabis use among young adults living in the community.

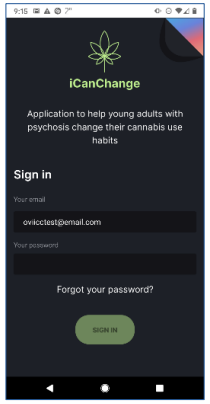
Methods: We conducted a systematic search of 7 databases for empirical studies published between database inception and February 13, 2023, assessing the following outcomes: cannabis use (frequency, quantity, or both) and cannabis-related negative consequences. The reference lists of included studies were consulted, and forward citation searching was also conducted. We included randomized studies assessing web- or mobile-based interventions that included a comparator or control group. Studies were excluded if they targeted other substance use (eg, alcohol), did not report cannabis use separately as an outcome, did not include young adults (aged 16-35 y), had unpublished data, were delivered via teleconference through mobile phones and computers or in a hospital-based setting, or involved people with mental health disorders or substance use disorders or dependence. Data were independently extracted by 2 reviewers using a pilot-tested extraction form. Authors were contacted to clarify study details and obtain additional data. The characteristics of the included studies, study participants, digital interventions, and their comparators were summarized. Meta-analysis results were combined using a random-effects model and pooled as standardized mean differences.

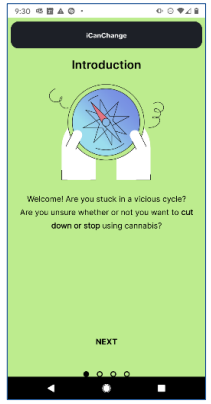
Results: Of 6606 unique records, 19 (0.29%) were included (n=6710 participants). Half (9/19, 47%) of these articles reported an intervention effect on cannabis use frequency. The digital interventions included in the review were mostly web-based. A total of 184 behavior change techniques were identified across the interventions (range 5-19), and *feedback on behavior* was the most frequently used (17/19, 89%). Digital interventions for young adults reduced cannabis use frequency at the 3-month follow-up

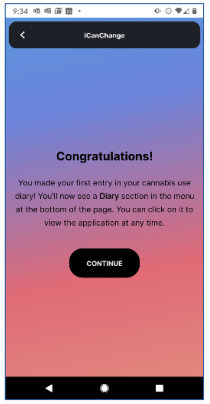


Adapting Technology to Populations with Psychiatric Disorders

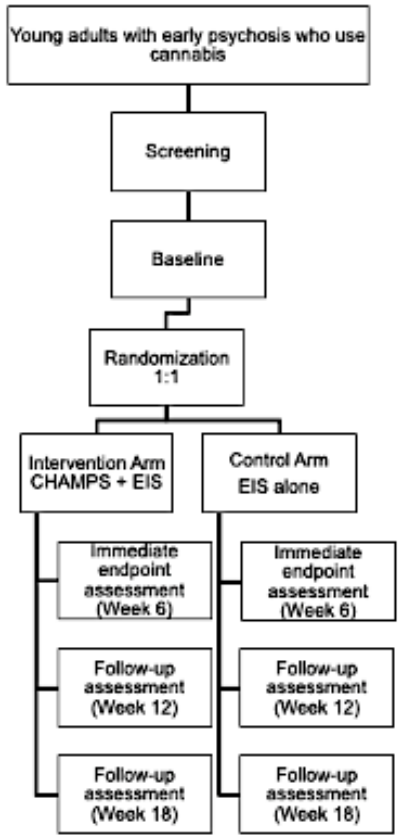
- Inspired on evidence-based approaches (ex: CBT, MI)
- Adapted with and for youth experiencing psychosis
- Collaboration process between researchers, clinicians and PWLLE
- Currently being tested (pilot RCTs completed)



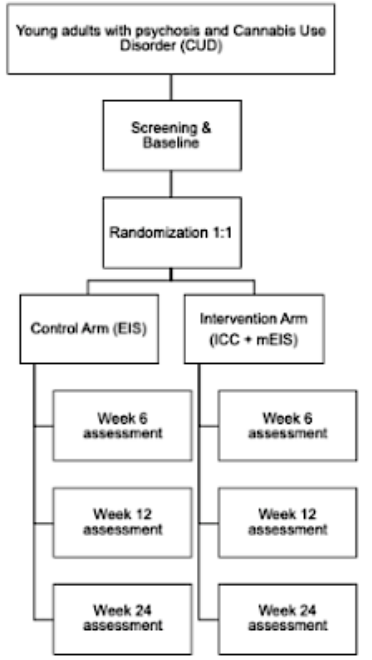




CHAMPS



iCanChange



Coronado-Montoya, S et al., JMIR Res Protoc 2023; Tatar et al., JMIR Res Protoc 2022

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