Lighting up to Extinguish the Opioid Crisis?: Exploring Emerging Research for Cannabis Use as a Harm Reduction Strategy

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Serendipity, chance, funny coincidence?
CMHA by the numbers

• Founded in 1918, the Canadian Mental Health Association (CMHA) is the most established and extensive community mental health organization in Canada.

• Each year, we provide direct service to more than 1.3M Canadians via 16,000 staff and volunteers in over 330 communities across Canada.
Core mandates

- Intervention and Support
- Promotion and Prevention
- Research
- Advocacy
At the forefront for over 100 years

- CMHA has played a vital leadership role in community mental health in Canada over the past century.

- CMHA provides advocacy, programs and resources to prevent mental health problems and illnesses, support recovery and resilience, and enable all Canadians to flourish and thrive.
Core functions:

- Building capacity
- Influencing policy
- Providing services
- Developing resources
Canada by the numbers

1 in 5 (6.7 million) Canadians suffer from a mental illness each year.  

As part of the 6.7 million Canadians with mental illness, *Substance Use Disorder* (addiction), not always recognized as a mental disorder, is the *second most common*. 
Canada by the numbers

33% of hospital stays in Canada are due to mental disorders.\textsuperscript{26}

500,000 Canadians, in any given week, are unable to work due to mental illness.\textsuperscript{10}
The issue in numbers

People with mental illness and addictions are **more likely to die prematurely** than the general population.

*Mental illness can cut 10 to 20 years from a person’s life expectancy.*

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**Mental disorders** account for **more of the global burden of disease than all cancers combined**.

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By 2020, **depression will become the second leading cause (next to heart disease) of disability** adjusted life years for all age groups and both sexes.

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Mental health as a priority

- Canada spends 7.2% of its annual federal health-care budget on mental health—the lowest percentage of all G7 countries.

- Many mental health services and supports, like psychotherapy, peer support and structured interventions, are not covered in the publicly funded healthcare system.
The Opioid Crisis
In the first half of 2018, **2,066** apparent opioid-related deaths occurred. This means **more than 9,000** lives were lost between January 2016 and June 2018 related to opioids.

(Health Canada, 2018)
An average of 17 people were hospitalized for opioid poisonings in Canada each day in 2017—an increase from 16 per day in 2016.

In 2017, opioid poisoning hospitalization rates in smaller communities were 2.5 times higher than rates in Canada’s largest cities.

(Health Canada, 2018)
Based on available data, 71% of suspected opioid-related overdoses occurred among men.

Suspected opioid-related overdoses were most common among individuals between the ages of 20 and 29.

(Health Canada, 2018)
Care not Corrections
Relieving the Opioid Crisis in Canada
CANADIAN MENTAL HEALTH ASSOCIATION
APRIL 2018
Promotion And Prevention

Strengthen the social determinants of health and invest in mental health services to ensure mental health for all
Treatment

Research, fund and improve access to treatment for Opioid Use Disorder, including evidence-based/evidence-informed alternative treatments
Harm Reduction

Build on the success of overdose prevention sites and supervised consumption sites and increase accessibility by providing public education on their effectiveness.

In B.C.

- **20 overdose prevention sites,**
- **66,604 visits** were made between December 2016-March 2017 and
- **481 overdoses were reversed.**
Collaboration and Support

Decriminalize the personal possession of illegal drugs with the goal of aligning Canadian drug laws with public health
Explore promising new research on cannabis as an alternative form of treatment to substitute opioids for pain management, to manage withdrawal symptoms, and/or treat substance use problems.
Cannabis legalization in Canada

October 17, 2018

(Yahoo Canada News, 2018)
Therapeutic Potential of Opioids/Cannabinoid Interactions
Opioid Receptors – Widely Distributed in the Brain

CB1 Receptors - Widely Distributed in the Brain

- High density in brain areas concerned with memory, cognition, motor coordination, mood, anxiety and reward and pain
- Express in spinal cord
- Express in lipocytes in fat tissue, liver, pancreas...

Overlapped distribution of Opioid and Cannabinoid Receptors

Befort Frontiers in Pharmacology 2015;(5):6-6
Opioid-Cannabinoid Interactions

- Release of opioid peptides by cannabinoids or endocannabinoids by opioids
- Existence of a direct receptor-receptor interaction when the receptors are co-expressed in the same cells
- Interaction of their intracellular pathways
- Cross-regulation of receptor density
- Cross-tolerance/sensitization
- Mutual potentiation (e.g. antinociceptive synergy)
Cannabis: Gateway Drug, Public Health Threat, or Harm Reduction Strategy?

• The Gateway Hypothesis (Kandel, 1975; Hall and Lynskey, 2005)

• Previous research focused on possible negative public health consequences: youth cannabis use (Choo et al., 2014; Wall et al., 2012), adult recreational and problematic use (Cerdá et al., 2012), crime associated with dispensaries (Freisthler et al., 2013; Boggess et al., 2014) and impaired driving and traffic fatalities (Anderson et al., 2013)

• Harm reduction strategy to relieve the opioid crisis? (Lake & Milloy, 2018; Lucas 2017; Samoilov & Browne, 2018)
Methodology

- Integrative review
- Searches of databases PubMed, EMBASE
- Studies in English, North America
- Hand searches of reference pages of published studies, editorials, and commentaries
- Pre-survey of 45 individuals who visited a harm reduction site in Vancouver, B.C.
Research on the Substitution of Cannabis for Opioids

- Ecological studies: State-level data exploring changes in opioid-related mortality, hospitalization, treatment admissions, and prescribing in states with medical cannabis (MC) laws and recreational cannabis (RC) laws
- Cross-sectional epidemiological studies: Self-report data of individuals who access a dispensary where medical cannabis is legal and who report substituting cannabis for opioids
- Prospective clinical studies: comparing two groups (often retrospective) at baseline and up to several months after intervention
Ecological studies: Findings

Mortality and overdose

From ~1999-2014, opioid-related overdoses and mortality higher in states with MC laws, but increased at slower rates compared to states without MC laws (Bachhuber et al, 2014; Powell et al., 2018; Heaghney, 2017)

- 24.8% lower mean mortality in states with MC laws (Bachhuber et al, 2014); 11-15% reduced mortality from opioid poisonings among adults aged 45-64 in states with MC laws (Smart, 2016)

- Only 5% reduction in mortality in states with MC laws (Powell et al., 2018); and 6.5% reduction in Colorado after legalization of recreational cannabis (Livingston et al., 2017)

- MC laws have little effect on overdose deaths (Heaghney, 2017)

- 13% reduction in overdose in states with MC laws and 23% reduction in hospital admissions for problematic opioid use or dependence (Shi, 2017)
Prescribing rates for opioids

No decrease in opioid prescribing in states with MC laws (Powell et al., 2018; Liang et al., 2018) or in states with recreational cannabis laws.

Decrease in opioid prescribing for Medicaid enrollees by 5.88% in states with MC laws (Wen and Hockenberry, 2018); and by 6.38% for Medicaid enrollees in states with RC laws (Wen and Hockenberry, 2018).

11% decrease in prescribing for “pain medications” in states with MC laws - includes opioids and non-opioid medications (Bradford et al., 2017).
Covariate #1: Dispensaries

“Treating all medical marijuana laws as homogeneous across states is misleading and does not reflect the reality of medical marijuana lawmaking” (Pacula et al., 2014)

• The decline in mortality was only significant (40%) if the state had a legal channel (dispensary) for retail cannabis sales (Powell et al., 2018)
• The decline in opioid prescribing was only significant (14.4%) in MC states with dispensaries - Medicare Part D enrollees (Bradford et al., 2018)
• There is no evidence that dispensaries are associated with reductions in opioid prescribing (Liang et al., 2018) or hospitalizations (Shi, 2018) in states with MC laws
Covariate #2 - Prescription monitoring programs (PMPs)

- States with PMPs have lower rates of increase in opioid-related mortality, and the strength of PMPs matters – stronger PMPs are correlated with greater reductions in mortality rate, upwards of 18% (Pardo, 2017)
- No association between PMPs and reductions in prescriptions in states with MC laws (Liang et al., 2018)
Covariate #3 – Low income and level of education

"The actual magnitude of the effects of medical marijuana is small when compared to our socio-economic covariates...marijuana policy, while potentially useful in combating this drug epidemic, is less important than socio-economic factors in curbing overdose deaths" (Heaghney, 2017)

• Socio-economic factors are more significant covariates in the opioid crisis than are MC laws (Heaghney, 2017)
Ecological studies: Methodological problems

“We cannot determine whether the association between MCL and decreased opioid prescribing represents substitution for any individual patient because we cannot observe both prescription use and medical cannabis use in the same patient; otherwise, our results would be vulnerable to the ecological fallacy” (Bradford et al., 2018)

• Population-level analyses cannot establish a causal connection between MC laws and reductions in opioid prescribing, use, hospitalizations, or deaths
• It is difficult to translate population-level analyses to individual marijuana-opioid substitutions (Finn, 2018)
• It is difficult to control for the effects of confounding variables (Campbell et al., 2018)
• There are state differences in access to methadone and buprenorphine (Campbell et al., 2018)
• There are state differences in access to naloxone
• There are state differences in reporting opioid-related deaths and admission rates to treatment
Epidemiological Studies: Findings

Substituting cannabis for opioids

No difference in the number of individuals substituting cannabis for prescription opioids in states with MC laws versus those without (Corroon et al., 2017)

No decrease in opioid use in a chronic pain population using cannabis compared to group not using cannabis (Dagenhardt et al., 2015)

64% decrease in opioid use among a small population of MC patients in Ann Arbor with chronic pain (Boehnke, 2016); decrease in opioid use by 47 percentage points in a MC cohort (Vigil et al., 2017)

76.7% of MC patients in Vermont, Maine and Rhode Island reported reducing their opioid use (41% “a lot” and 35.8% “slightly”) (Piper et al., 2017)
• The drug class for which there are the highest number of substitutions are opioids (Piper et al., 201; Corroon et al., 2017)

• Not all cross-sectional studies report dose reductions; e.g., Corroon et al., (2017) reported that 46% of MC patients reduced use, but only by an average of 2 substitutions per individual
Epidemiological studies: Methodological Problems

- Selection bias: Self-report data from dispensary clients
- Self-report data: relies on patient disclosure of use of other substances (not confirmed by biological drug detection) and in some cases, estimations of number of dose reductions
- Diversity of populations sampled
Research Gaps

• "There remains a lack of high quality clinical trials that clearly demonstrate whether cannabinoids may reduce opioid dose requirements" (Campbell et al., 2018)

• Marginalized groups at high risk of fentanyl exposure: research with individuals who use illegal drugs and access harm reduction sites
High Hopes Foundation

High Hopes is a small grassroots harm reduction initiative offered by the Overdose Prevention Society in Vancouver's Downtown Eastside. It offers cannabis products for purchase or at no cost to individuals so that they have options for pain management beyond opioids.

- Bud/grass, edibles, capsules, CBD, cannabis-infused honey, kratom
- Drug checking service

(CBC, 2017)
• Mini cross-sectional, epidemiological study
• Administered a short, close-ended question survey (9 questions total) to High Hopes (HH) visitors over a 2-day period
• Self-report
• Collected basic demographic information
• "Do you have any medical diagnoses that have been confirmed by a medical practitioner?"
• Survey asked about consumption of substances before visiting HH and after accessing cannabis products
• Asked if they had ever overdosed, tried to cease their use of any substance, if their purpose in visiting HH was to taper off opioids
• Descriptive statistics
Results

Population

n = 45

Median age = 39

72% male, 19% female, 4% non-binary or 2 Spirit

22% permanently housed, 10% homeless, 7% living in a shelter

63% White, 23% Indigenous, 8% identified as "Other," 4% person of colour, 2.5% Indigenous and White or Indigenous and "Other"
78% of respondents identified with at least having one mental illness
High Rates of Mental Illness

Do you have any medical diagnoses that have been confirmed by a medical practitioner?

- Depression – 54%
- PTSD – 49%
- Anxiety – 49%
• 65% of sample population report that they experienced an overdose

• This is a population at high risk for harm associated with overdose
What do the numbers tell us?

Stop methods reported by individuals attempting to end substance usage
What do the numbers tell us?

Are you visiting High Hopes to taper off opioids?

- Yes: 82%
- No: 18%

Of respondents visited High Hopes to taper off a substance
Self-reported substance use reduction

Reduction by substance

- Opioids: 72%
- Methamphetamine: 68%
- Cocaine: 58%
Self-reported substance use reduction

Has using marijuana / cannabis helped you to reduce your consumption of any other drug? If yes, by how much?
Self-reported substance use reduction

Has using marijuana / cannabis helped you to reduce your consumption of any other drug? If yes, by how much?

![Cocaine consumption reduction chart](chart.png)
Sharpening our message

ENDING THE HEALTH CARE DISPARITY IN CANADA

Over half of Canadians consider anxiety and depression to be ‘epidemic’ in Canada

85% of Canadians think mental health services are the most underfunded in our health-care system.

www.cmha.ca
Mental Health Parity

1. Publicly fund evidence-based therapies
2. Improve the quality of care through a continuum of integrated services
3. Invest in promotion, prevention, and early intervention
4. Address stigma and discrimination and ensure equitable access
5. Research mental illness and evaluate health outcomes
Whole-population approach

• A population health approach requires an investment in partnerships between public health and community mental health to achieve a focus on mental health promotion and mental illness prevention in Canada’s public health response.
Our stepped care model

Highly Intensive Mental Health Services & Supports
(e.g., inpatient hospital treatment; long term residential treatment for addiction, eating disorders; long-term intensive day treatment programs)

Specialized Mental Health Services & Supports
(e.g., outpatient psychotherapy services provided by psychologists/psychiatrists; ACT teams & other outpatient wrap-around services; short term residential addiction treatment; outpatient early intervention programs)

Services Provided By Formal Health & Social Systems
(screening, assessment & early intervention by interdisciplinary primary care providers, including GPs, Nurse Practitioners, & Allied Health Professionals)

Formal Community Based Services & Supports
(e.g., Formal Community Based Services such as trained & paid peer workers & recovery coaches; mental health and addictions counsellors; easily accessible structured intervention programs like Bounce Back, Living Life To The Full; school-based mental health services)

Informal Community Supports
(e.g., peer support networks such as AA; Elders in Aboriginal communities; Canadian Legions for veterans; other volunteer services outside formal paid system)

Universal
(e.g., school-based education programs, psychological health & safety standards in workplaces, universal prevention)
Thank you!

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