



Thinking Beyond Legalization: The Case for Expanding Evidence-Based Options for Cannabis Use Disorder Treatment in Canada

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Keywords

Canada, cannabis, cannabis use disorder, legalization, treatment

With the impending legalization and regulation of non-medical cannabis use and supply for the benefits of public health and safety in Canada, intensive discussions are ongoing on many important fronts: age and use restrictions, retail distribution, cannabis-impaired driving, and so on.^{1,2} One issue has received surprisingly little attention: the phenomenon of cannabis use disorders (CUD).³ We are writing to highlight that, despite a substantial burden of CUD in the population, there is limited availability and access to evidence-based, effective treatment options. As Canada undergoes a fundamental policy change towards cannabis legalization, it is important not to lose sight of the opportunity and need to create better evidence and scale-up of effective interventions for CUD.

It is well-recognised that CUD (i.e., the new diagnostic term that covers both the previous concepts of cannabis abuse and dependence) can develop as a consequence of cannabis use and occurs in sub-sets of users;⁴⁻⁶ select symptoms of CUD include difficulties in use control, disruptions in functioning, and increased tolerance and withdrawal. Well-documented predictors of CUD include: initiation of cannabis use early in life, intensive or frequent use, and the use of high-potency (e.g., high tetrahydrocannabinol [THC] content) cannabis products.^{4,7-10} Given cannabis' status as the most commonly used illicit drug, there were an estimated 13 million or more individuals (0.2% of the population) with CUD (dependence) globally in 2010, with peak prevalence among young adults.¹¹ Previous epidemiological estimates suggest that about 10% of users develop dependence,^{12,13} yet, more recent data indicate that larger proportions of users, and mainly those with intensive use, may develop CUD.¹⁴ Recent preminent US-based surveys (e.g., National Survey on Drug Use and Health [NSDUH], National Epidemiologic Survey on Alcohol and Related Conditions

[NESARC]) found that the (past-year) prevalence of CUD among general-population adults ranged from 1.5% to 2.9% (depending on the survey),¹⁵⁻¹⁷ whereas estimates for CUD rates among active (i.e., past-year) cannabis users in the US ranged from 12% to 31% in adults,^{15,16} and 20% to 25% in youths.^{18,19} In the US and elsewhere, CUD has been found to be more common among males and ethnic subgroups, and is associated with other substance use and/or mental health comorbidities.²⁰⁻²³

Recent analyses suggest that both the rates of cannabis use and CUD have increased more among adults in US states (1991/92 – 2012/13) with “liberalised” (e.g., medical/legalisation) cannabis control regimes, as compared with less-

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liberal control jurisdictions; this, however, does not seem to be the case among adolescents.²⁴⁻²⁶ Conversely, other jurisdictions, for example, various European countries, including the UK, have reported increases in demand for CUD treatment over the past decade, with much of it concentrated on youths and young adults.²⁷⁻²⁹ These increases in CUD treatment demand have been explained, in part, by the rising prevalence of the above-mentioned key risk factors for CUD, but also by increasing treatment availability.^{21,22,27,30}

In Canada, where there has been less routine or consistent population assessment of rates of cannabis use and problem indicators, approximately one-third of current (past-year) cannabis users in the general adult population (ages 15+ years) reported CUD (dependence) symptoms in 2004 (Canadian Addiction Survey [CAS]).³¹ More recently, about 1 in 5 users (ages 15+ years) reported select CUD symptoms (in the past 3 months) in 2013, with rates more than double among men compared with women (Canadian Tobacco, Alcohol and Drugs Surveys [CTADS]).³² An overall cannabis dependence rate of 1.3% in the Canadian general adult population was reported in 2012.³³ Among current adult cannabis users (ages 18+ years) in Ontario, rates of moderate-to-high risk cannabis problems (based on the ASSIST 4+)³⁴ have ranged between 39% and 52% (2005 to 2015), with elevated rates among male and younger users.³⁵

Recent estimates indicate that CUD is a primary contributor to both the adverse cannabis-related public health impact and disease burden in Canada. It was estimated (for 2010) that, nationally, there may have been fewer than 400,000 individuals with CUD, with a minority presumed to be engaged in treatment.³⁶ Applying estimates for US adults^{15,16} would result in a projected adult population of approximately 430,000 to 830,000 individuals with CUD in Canada. An estimate of the cannabis-attributable disease burden (for 2012) for Canada concluded that the majority (approximately 70%) of overall Disability Adjusted Life Years (DALYs) was due to CUD, followed by cannabis-impaired driving.³⁷ Regarding treatment demand for CUD, the annual number of cannabis-related treatment admissions—based on data from the publicly funded system of more than 200 addiction treatment agencies in Ontario—has remained stable in recent years (~33,000 annual cases) from 2007/08 to 2015/16.^{38,39} These data may, however, indicate the limits of treatment system capacity rather than a stagnant demand. Conversely, rates of cannabis-related substance treatment seeking in Nova Scotia rose from 4.7% in 2009/10 to 7.2% in 2011/12, with more than one-third involving adolescents (ages 13 to 17 years).^{40,41} These data are complemented by recent substantial increases in hospitalizations for cannabis-related mental and behavioural disorders, from 4.64/100,000 population in 2011/12 to 6.49/100,000 population in 2015/16, nationally.⁴² Given recent trends in cannabis use and risk behaviours, and depending on final regulatory details, these levels and extents of cannabis use and CUD can safely be assumed to remain following the

implementation of legalization in Canada; if recent US-based estimates (e.g., see Hasin et al., 2017²⁴) are a valid indication, these rates may quite possibly increase in these changing contexts.

Although cannabis is one of the substances for which addiction treatment services are most often sought, interventions shown to be effective in treating CUD remain limited. Presently, psychosocial approaches have been extensively studied relative to pharmacological interventions, with only the former being routinely available in current clinical practice.^{43,44} A recent Cochrane review highlighted the large number of studies conducted to investigate the efficacy of non-pharmacological treatment strategies.⁴⁵ Many of these studies do not include an objective assessment of substance use and, overall, show a great heterogeneity in terms of design and methodology. Nevertheless, relatively consistent evidence suggests that cognitive-behavioural and motivational intervention approaches are superior to no treatment (or minimal intervention) towards improving outcomes associated with cannabis dependence.⁴³ Some studies also suggest that combining these approaches with contingency management interventions may improve therapeutic outcomes.^{46,47} Beyond the initial promises of these results, it should be noted that the overall proportion of CUD patients with favourable treatment responses remains low. Concretely, whereas CUD patients receiving any intervention are about twice as likely to achieve abstinence at a short-term follow-up, less than 25% are abstinent at a follow-up longer than 3 months.⁴⁵ Single-session interventions are associated with even poorer outcomes, with less than 5% of individuals remaining abstinent after receiving a single session of cognitive behavioural therapy (CBT) or motivational enhancement therapy (MET).^{48,49} Other (non-abstinence) outcomes, such as dependence severity, have also been evaluated in these studies of psychosocial interventions, with generally small effect sizes being reported.⁴³

Several other key issues in developing evidence-based treatment options for CUD remain unanswered. For instance, the intensity, sequencing, and beneficial combinations of intervention components remain poorly understood. Additionally, few data exist to guide the choice of intervention strategy (or combination of interventions) based on individual characteristics (e.g., for treatment matching), as well as on the role of participant choice in treatment alternatives. Strategies to integrate computerised and web-based cognitive-behavioural reinforcement approaches to therapeutic interventions have shown promise^{50,51} but require further scientific examination.

From a pharmacotherapy perspective, the available scientific data are even more limited. Despite the substantial prevalence of CUD in the general population, limited research efforts have been made to develop and evaluate pharmacological treatments for this condition; this contrasts with the numerous effective pharmacological interventions that exist and are approved for other substance use disorders; for example, for the treatment of alcohol, nicotine, and

opioid use disorders.⁵²⁻⁵⁵ Many of these pharmacotherapeutic options, by now, are integral and widely administered elements of good treatment practice for substance use disorders, both in primary care and specialized settings. For CUD, a limited number of pharmacological treatment approaches have been examined; most have been studied as stand-alone medications, yet most of the rare positive results have not been replicated. For example, approaches using antidepressants and mood stabilizers are ineffective in both relieving CUD-related withdrawal and preventing relapse in newly abstinent individuals.^{56,57} Some exploratory studies have shown that nabiximols (a combination of THC and CBD) can help relieve withdrawal symptoms^{58,59} and reduce cannabis use.⁶⁰ The most promising approaches seem to be with CB1-receptor agonists, gabapentin and N-acetylcysteine; yet, positive results are either preliminary or have not been effectively replicated.^{61,62} Recently, novel approaches have been investigated, such as the modulation of the noradrenergic system with guanfacine, but it is too early to determine their potential utility.⁶³

The prevalence and disease burden of CUD in the Canadian population is substantial and may possibly increase further through changing risk behaviours among users as well as increasing availability and use in the context of the impending cannabis legalization.^{24,64,65} The majority of people with CUD in Canada must be assumed to currently not access or benefit from evidence-based treatment for CUD; this undesirable state is substantially influenced by the limited slate of effective treatment options for CUD. Hence, evidence-based treatment options urgently need to be studied and scaled up where effective. However, whereas there is much focus on the policy reform details of legalization, many of these challenges already exist and should be urgently approached and addressed. Thus, concerted research action on expanding CUD treatment options needs to be facilitated on several fronts; for example, through targeted funding. Indeed, given the substantial lack of pharmacotherapeutic options for CUD, rigorous research into viable options—especially those that have provided preliminary positive signals—needs to be bolstered (e.g., through randomised clinical trials). Furthermore, there needs to be a better understanding of cognitive-behavioural interventions, along with an implementation of targeted research on the utility of combining different treatment modes (e.g., psychosocial with pharmacotherapeutic), sequential treatment staging, and treatment matching. Overall, it should be a major concern that, relative to the size of the population with CUD, the toolbox of evidence-based treatment options (e.g., compared to alcohol, nicotine or opioid treatment) is comparatively small and limited. This needs to change given the impending major cannabis policy change aiming to improve public health and safety. The time to do so is now, considering that non-recreational cannabis use—as a crucial exposure for possible pathways to CUD—will shortly be a legal activity in Canada.

Acknowledgements

The authors thank Lenka Vojtila and Sanjna Gogna for their support in assembling this manuscript.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: All authors have received substance use treatment related research support from public research funding sources (e.g., Canadian Institutes of Health Research, National Institutes of Health). Dr. Fischer has served as scientific advisor on cannabis-related topics to government entities (e.g., Health Canada). Dr. Le Foll has received research support from pharmaceutical companies (e.g., GW Pharma) and licensed medical marijuana producers for cannabinoid-related studies; Dr. Bruneau has received non-cannabis-related study support from Gilead and Merck; Dr. Jutras-Aswad has received non-cannabis use disorder related study support from Insys Therapeutics.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was, in part, supported by the Canadian Institutes of Health Research (CIHR) grants for the four regional CRISM Node Teams (#SMN-139148, #SMN-139149, #SMN-139150, #SMN-139151). Further support came from the Endowed Chair in Addiction Psychiatry, Department of Psychiatry, University of Toronto (B. Fischer); the Fonds de Recherche du Québec – Santé Clinical Researcher Career Award (D. Jutras-Aswad); the Tier 1 Canada Research Chair in Inner City Medicine (E. Wood).

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