On the use of digital technologies to reduce the public health impacts of cannabis legalization in Canada

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Abstract

The imminent legalization of recreational cannabis represents a considerable public health challenge that requires proactive measures to ensure a responsible transition. The federal government recognizes the need for strict regulation to reduce cannabis-related health harms, notably among the youth. Additionally, the government plans to oversee a national public awareness campaign as part of a harm-reduction strategy. In light of the public health risks of cannabis legalization, this paper proposes the implementation of increasingly popular, evidence-based, preventive, and therapeutic digital interventions to minimize the harms of this policy among adolescents and young adults. These E-health interventions facilitate healthcare delivery, improve patient care, and overcome stigmatization, especially in the context of substance abuse. Therefore, we argue that a continuum of digital tools, including prevention programs, educational material, and therapeutic interventions aimed at reducing risky consumption of cannabis, should be embraced as part of a comprehensive public health strategy by the federal government in anticipation of legalization later this year.

Résumé

La légalisation imminente du cannabis récréatif pose un défi considérable pour la santé publique, défi qui nécessite des mesures volontaristes pour que la transition se fasse sans heurts. Le gouvernement fédéral reconnaît le besoin d'une réglementation stricte pour réduire les méfaits du cannabis pour la santé, tout particulièrement chez les jeunes. De plus, le gouvernement entend coordonner une campagne d'information nationale dans le cadre d'une stratégie de réduction des méfaits. Compte tenu des risques de la légalisation du cannabis pour la santé publique, nous proposons ici la mise en œuvre d'interventions numériques préventives et thérapeutiques fondées sur les preuves pour réduire les méfaits de la politique envisagée pour les adolescents et les jeunes adultes. De plus en plus populaires, ces interventions cybersantitaires facilitent la prestation des soins de santé, améliorent les soins aux malades et désamorcent la stigmatisation, surtout dans le contexte des toxicomanies. En conséquence, nous faisons valoir qu'un continuum d'outils numériques incluant des programmes de prévention, du matériel pédagogique et des interventions thérapeutiques visant à réduire la consommation de cannabis à risque devraient faire partie de la stratégie de santé publique globale du gouvernement fédéral en prévision de la légalisation du cannabis cette année.

Keywords Cannabis · Prevention · Internet-based · Computer-based · E-health · Substance use

Mots-clés Cannabis · Prévention par Internet · Prévention assistée par ordinateur · Cybersanté · Consommation de substances

Introduction

As the federal government proceeds to legalize recreational marijuana in 2018, important questions are being raised on its

potential impacts on public health and safety (Health Canada 2017). Given the apparent failure of prohibition policy and increasing public support for legalization, the Cannabis Act was recently passed to create a framework for the safe production, distribution, and consumption of the drug (Health Canada, Task Force on Marijuana Legalization and Regulation 2016).

The significant health harms related to cannabis use, namely lung cancer and psychosis, have long been recognized, notably for youth, who face the greatest health risks and

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are also its greatest consumers (Health Canada 2017). Alarming, 28% of Canadian adolescents have reportedly used cannabis in the past year, the highest rate in the developed world (UNICEF Office of Research 2013). While research on the impact of legalization on consumption rates is preliminary, a study conducted in Oregon demonstrated an increased frequency of use by youth already using the drug (Rusby et al. 2018). In California, an important increase in consumption rates and permissive changes in marijuana-related attitudes were observed after decriminalization (Miech et al. 2015). Accordingly, we may expect an increase in consumption after legalization, the magnitude of which is difficult to estimate.

The high rate of consumption by Canadian youth is especially alarming given widespread misinformation regarding the drug in this population. In 2013, the Canadian Centre on Substance Abuse issued a concerning report exploring youth perception of marijuana (Porath-Waller et al. 2013). In a series of interviews conducted with high school students, it revealed a widespread perception of cannabis as safe and posing minimal risk. Some adolescents even believed it procured numerous health benefits, including curing cancer (idem.). These findings are complemented by the 2015 Ontario Student Drug Use and Health Survey which reported a trend of decreased perceived risk of harm of cannabis consumption among adolescents (Adlaf and Paglia-Boak 1977). It is indeed worrisome that there soon may be greater access to the drug for consumers who poorly understand its associated health risks.

Perceiving the urgent need to establish a framework for the strict regulation of cannabis, the federal government set up a special task force to provide advice on its safe implementation. Chief among the Task Force's proposed public policy objectives was the restriction and discouragement of youth access to marijuana (Health Canada, Task Force 2017). The protective measures include imposing a minimum age for purchase of 18, limiting advertisement, and developing "broad, holistic prevention strategies to address, [...], problematic cannabis use" (idem.). But despite the commitment to a "broad public health campaign" to help young Canadians make informed choices, the government has not clearly delineated an evidence-based public health plan specifically designed for reducing health risks among youth (Health Canada 2017). In anticipation of the forthcoming public health challenge of legalization, we propose the implementation of digital platforms to deliver special prevention and treatment programs targeting cannabis use by Canadian youth as a viable, innovative, and evidence-informed strategy.

There has been growing interest in the use of E-health strategies, defined as health services and information delivered or supported by electronic technologies, among healthcare professionals, public health specialists, and educators (Chief Public Health Officer 2014). Delivery platforms

for relevant, effective content vary, ranging from web-based and computer-based applications to text messaging (idem.). These platforms, many of which consist of theory- and practice-based counseling modules, are proving to facilitate healthcare delivery and improve patient care and outcomes, and are demonstrably flexible and broad in application. The use of these strategies to address substance abuse, particularly cannabis, is of interest, as a substantial body of literature supports their efficacy in addressing problematic alcohol use, particularly among college students (Bewick et al. 2008; Hustad et al. 2010; Moore et al. 2005).

While similar interventions for cannabis use have not reached comparable mainstream implementation, their efficacy has been supported by a growing body of randomized trials, a great number of which have focused specifically on youth populations (Tait et al. 2013; Walton et al. 2014). A recent meta-analysis of ten RCTs, most of which focused on adolescent and college student populations, investigated Internet- and computer-based preventive and therapeutic interventions for cannabis use and demonstrated a statistically significant reduction (NNT of 11) in cannabis consumption comparable to that reported for similar smoking cessation interventions (Tait et al. 2013). The authors concluded that given the widespread use of the Internet, particularly by the youth and underserved populations, such an intervention "could have a considerable public health impact" (idem.). A more recent RCT involving 714 adolescents over a 12-month period similarly demonstrated how a computer-based intervention successfully prevented and reduced cannabis use (Walton et al. 2014). In this respect, preliminary results support the short-term efficacy of E-health interventions aiming at preventing and/or treating cannabis abuse by youth.

Not only do electronic-based preventive and therapeutic strategies work, they also feature the additional benefits of being anonymous, economical, and easily accessible. These are appealing advantages for interventions aimed at individuals suffering from addiction who face numerous barriers to accessing conventional treatment services, including stigma, cost, and transportation. In this context, E-health strategies are superior to conventional methods of health promotion and healthcare delivery. Anonymous counseling online can circumvent the risks of social stigma and provide a convenient alternative for cannabis users wishing to access treatment (Schaub et al. 2015). A randomized trial recently conducted in Switzerland characterized the efficacy of web-based self-help interventions based on "the principles of motivational interviewing, self-control practices, and methods of cognitive behavioral therapy" (idem.). These modules reduced cannabis use at 3 months and had an even greater effect when combined with chat counseling, highlighting the potential of a more personalized approach (idem.). Notably, the web-based intervention successfully reached individuals who would not have sought assistance otherwise, demonstrating the unique

capacity of digital technologies to overcome accessibility challenges. With the advent of mobile phone technologies and their growing popularity with youth, interventions packaged as user-friendly mobile apps should be considered to maximize access and portability, while popular social media platforms may be coopted for targeted advertisement and distribution of such applications.

On the other hand, the limitations of E-health strategies must be considered. First, proper incentivization structures to ensure continued engagement with E-health platforms distributing preventive modules are not well elaborated; no clear data on the retention rates of these interventions in a real-world setting exist. Second, the potential for abuse in the form of privacy breaches exists—an E-health intervention, particularly Internet-based applications, will need to be rigorously screened for safety and privacy by developers. Third, the potential for psychological harm for users should not be dismissed, and such an intervention must have an integrated safety net. Finally, a complementary solution should be considered for the minority of targeted persons who may not have access to mobile phones and/or Internet services. These concerns will need to be addressed.

Nevertheless, E-health strategies are proven to be successful and represent the pragmatic solution to mitigate the public health risks of legalization. Thus, we propose a continuum of E-health strategies including, but not limited to, prevention programs, educational material, screening, and interventions aimed at preventing risky consumption of cannabis and treatment for cannabis-related substance use disorder, with an emphasis on targeting adolescents and young adults. This cutting-edge strategy, modeled on validated interventions, should be flexible and delivered in an equitable manner as part of a broad, comprehensive federal plan aimed at minimizing the anticipated public health impact of cannabis legalization.

There is a clear need for the development and transmission of appropriate educational material aimed at addressing misconceptions among youth to prevent problematic cannabis use (Kilmer et al. 2007). These would best be distributed through a coherent E-health strategy as results from recent trials have shown that computer-based interventions do increase knowledge on cannabis-related harm and may play a role in modifying behavioural intent and reducing consumption among adolescents (Champion et al. 2013). We strongly encourage the federal government to capitalize on the popularity of social media as an efficient and cost-effective method to actively disseminate targeted information to youth. Establishing a high-quality, evidence-based information hub on cannabis consumption for Canadian youth would have the advantage of providing a popular alternative to disreputable sources.

Conclusion

Preventive and therapeutic electronic-based interventions have been shown to be effective and easily accessible for individuals at risk of or suffering from marijuana-related substance abuse. These technologies can overcome barriers of access, stigma, and cost, as they reach a broader audience, including youth and traditionally underserved populations. With the imminent legalization of cannabis, the federal and provincial governments should be committed to preventing and minimizing the harms of this policy among adolescents and young adults. These objectives would best be served by disseminating health information communicating the risks and properties of cannabis via computer- and mobile-based technologies and implementing empirically-supported E-health preventive and therapeutic programs, as part of a coherent, comprehensive public health strategy ensuring a safe transition to legalization status later this year.

Compliance with ethical standards

Conflict of interest The author declares that he has no conflict of interest.

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