Developing Equitable Approaches to Prevention, Harm Reduction and the Routes of Administration (ROAs): Aligning Cannabis, Tobacco Use and Vaping

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Background

With legal recreational cannabis use in Canada, there is an urgent need to assess the harms and benefits of different routes of administration (ROAs), and develop appropriate policies, regulations and public health approaches.

Evidence from some US states suggests that legalization is associated with increased popularity of ROAs other than smoking, including vaping and edibles [1]. Regulations and public health messaging related to cannabis ROAs need to align with evidence, policy and messaging regarding tobacco secondhand smoke and electronic nicotine delivery systems (ENDS).

Sex, gender and equity considerations must be integrated in order to support the development of regulations and policies that prevent unintended consequences and benefit all.

Objectives

To present key findings from a scoping review on:

- How sex and gender related factors impact patterns of use and exposure and the health effects of different routes of administration; and
- The implications for aligning sex-, gender- and equity-informed prevention and harm reduction responses to cannabis, tobacco, and electronic nicotine delivery systems (ENDS).

Methods

A scoping review was conducted to synthesize academic and grey literature published between 2007 and 2019 on sex and gender based factors, and cannabis, tobacco and ENDS. A subset of (n= 22) papers on ROAs was summarized.

Results

1. Harm Reduction

The Lower Risk Cannabis Use Guidelines for Canada suggest all people avoid using combustible cannabis and choose methods such as vaping and edibles, based on evidence that smoking cannabis produces harmful byproducts [2] and is linked with adverse respiratory health outcomes [3] such as chronic bronchitis [4].

ENDS are being investigated regarding their harm reduction potential or as tools to support tobacco smoking cessation, as they produce fewer toxicants and known carcinogens [5-7].

Some have argued for the restriction of cannabis smoking in public spaces to prevent the potential health harms of secondhand smoke and support the gains made to denormalize tobacco smoking [8, 9].

2. Unintended Harms

However, there may also be unintended harms associated with non-smoking ROAs, and overlapping issues with ENDS and tobacco use:

Vaping of both nicotine and cannabis may increase the frequency of nicotine and cannabis use among youth [2, 6].

People who use ENDS often also smoke cigarettes [10] and people who vape cannabis also tend to smoke cannabis [11, 12], and multiple ROAs of cannabis may be associated with greater risk of misuse and addiction [2].

ENDS and cannabis vaping devices vary widely and the byproducts and health effects may vary depending on the carrier compounds, product materials and heating capacity [2, 13].

Edible cannabis use avoids respiratory harms, but as the effects are delayed and unpredictable, there is less capacity to titrate dosage [13], and there are risks of accidental ingestion, particularly by children and pets [14].

3. Sex and ROA

Evidence is lacking on the sex-related effects of different ROAs of cannabis [15].

No human studies have examined sex differences in the pharmacokinetics of smoked cannabis administration [16].

Animal studies often include males only, and typically administer cannabis via intravenous or intraperitoneal methods [16].

There is evidence for the therapeutic potential of some cannabis ROAs, although sex related effects have not been investigated. For example, transdermal CBD improved measures of pain and inflammation in a male rat model of arthritis [17].

4. Gender and ROA

Evidence on gendered preferences and prevalence of use suggests that:

More men and boys report vaping cannabis [11, 12, 18], smoking joints or using cannabis concentrates [18, 19].

Women [18] and girls [20] tend to prefer edible cannabis, in part because these products are more discreet [21].

Vaping devices are increasingly being designed to target specific user groups, including girls and women; marketing efforts are rebranding the image of cannabis users as "stylish and fashionable" [22].

Conclusions

Further research is required to understand the benefits and harms of various ROAs for all sex and gender groups and to develop harm reduction advice that is sex, gender and equity informed [23].

Regulatory issues regarding cannabis vaping overlap with ENDS and tobacco regarding sales, manufacturing and public use; consistent and coordinated responses are needed.

As evidence is developed and regulations introduced, sex and gender issues must be integrated into harm reduction information so both males and females are fully informed about the health impacts linked to different ROAs of cannabis.

KEY POINTS

✓ **Currently, there is limited scientific evidence on how sex and gender influence cannabis or nicotine vaping.**

✓ **There is a need for the introduction of consistent and coordinated responses to cannabis, tobacco, and nicotine vaping to assist users and practitioners in harm reduction and to achieve policy and regulatory consistency.**

✓ **As policy, practice, and regulations evolve regarding cannabis routes of administration, it is critically important that evidence on sex, gender, and equity is integrated.**

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