

## Prescription Stimulants

### Key Points

- The use of prescription stimulants among people living in Canada (aged 15 years and older) in 2019 was about 2%, unchanged from 2017 and represents a significant increase from 2015 (approximately 1%).
- In Canada, the prevalence of prescription stimulant use is highest among youth aged 15–19 years old (4.7%) and young adults aged 20–24 years old (9.1%). The prevalence of use among young adults has been continually increasing since 2013 (1.9%).
- Of the 2% of the general population living in Canada (aged 15+) who reported prescription stimulants use in 2019, more than one-third reported problematic use, including use to get high and to feel better, a significant increase from 2017 (~19%).
- Approximately 60% of postsecondary students (aged 17 to 25 years old) who reported using prescription stimulants in 2019–2020 (~12%) reported problematic use.
- Many postsecondary students report non-medical use of prescription stimulants to enhance academic performance. However, there is no evidence to support such an outcome. There is little Canadian data available on the harms associated with prescription stimulant use.

### Introduction

Stimulants are a broad category of substances that act to increase the level of activity of the central nervous system (CNS). Stimulants increase attention, alertness and energy. The category includes commonly used substances such as caffeine and nicotine, over-the-counter decongestants (e.g., pseudoephedrine), illegal drugs (e.g., cocaine, methamphetamine) and prescription stimulants (e.g., methylphenidate, mixed-salt amphetamine). This drug summary focuses on prescription stimulants.

The most common use of prescription stimulants is to treat individuals diagnosed with attention deficit hyperactivity disorder (ADHD). Other medical uses for prescription stimulants include the treatment of narcolepsy and other sleep disorders. Table 1 lists examples of the generic, trade and street names for some common prescription stimulants.

**Table 1. Common generic, trade and street names for stimulants**

Generic Name	Trade Name	Street Names
methylphenidate	Ritalin®, Concerta®, Biphentin®	vitamin R, skippy, rids, uppers
dextroamphetamine	Dexedrine®	bennies, black beauties, hearts
amphetamine and dextroamphetamine	Adderall®	beans, dexies, amps
lisdexamfetamine dimesylate	Vyvanse®	vanies



Prescription stimulants are primarily consumed in pill form for medical use, but some stimulants have the potential for non-medical use. Motives for non-medical use of stimulants include to get high, to improve mood, to reduce appetite, to cope with stress or other problems, and to enhance focus or increase alertness and improve academic performance. In this summary, “prescription stimulant use” refers to use of stimulants as prescribed. “Non-medical prescription stimulant use” includes using a prescription stimulant without a prescription written for the individual taking the drug, using prescription stimulants provided by multiple doctors, nurses or pharmacists (“double-doctoring”), using a prescription stimulant for purposes other than those indicated when prescribed (e.g., for euphoric effect), using a prescription stimulant in ways other than prescribed (different form or route), or using a prescription stimulant more or less often than prescribed.

## Effects of Prescription Stimulants

### Short-Term

These medications, which are in the same class of drugs as cocaine and methamphetamine, increase alertness, energy and attention at low doses. The effects of stimulant drugs are produced as the drug increases levels of dopamine, a neurotransmitter in the brain important for pleasure, motivation, movement and attention. At low doses, prescription stimulants narrow blood vessels in the body, which causes a decrease in blood flow and oxygen to the heart, at the same time causing an increase in blood pressure and heart rate. Stimulants also increase body temperature and breathing rate, as well as decrease the ability to sleep and the desire to eat. Other short-term effects can include sweating, dilated pupils, restlessness, aggressive behaviour, dizziness, tremors, increased ability to concentrate, paranoia and hallucinations. Non-medical prescription stimulant use may cause psychosis and paranoia and can cause complications if injected. These include blockage of small blood vessels due to insoluble fillers in the tablets, infections at the injection site, and rapid onset of effects that can cause blood pressure and heart rate to spike.

### Long-Term

Although prescription stimulants do have benefits for managing symptoms of ADHD and other conditions, they can have long-term negative effects. At high doses, they can lead to serious cardiovascular complications, including heart attack, stroke and lethal seizures. If prescription stimulants are used chronically, withdrawal symptoms — including fatigue, depression and disturbed sleep patterns — can emerge when the drugs are discontinued. There is also the potential for dependence and substance use disorder. The non-medical use of prescription stimulants can alter a person’s judgment and decision-making ability, which can increase the likelihood of engaging in risky behaviours, such as drug-impaired driving and unsafe sex.

## Legal Status of Prescription Stimulants in Canada

Prescription stimulants are classified as Schedule III drugs under the *Controlled Drugs and Substances Act* (CDSA). Their use is legal only when they are prescribed by licensed practitioners and are used by the person for whom they are prescribed and according to the directions of the practitioner (e.g., dose and frequency). Illegal possession of stimulants and “double doctoring” (i.e., obtaining a prescription from more than one practitioner without telling the prescribing practitioner about other prescriptions received in the past 30 days) can result in three years imprisonment. Trafficking, importing, exporting or producing stimulants can result in 10 years imprisonment.<sup>1</sup>

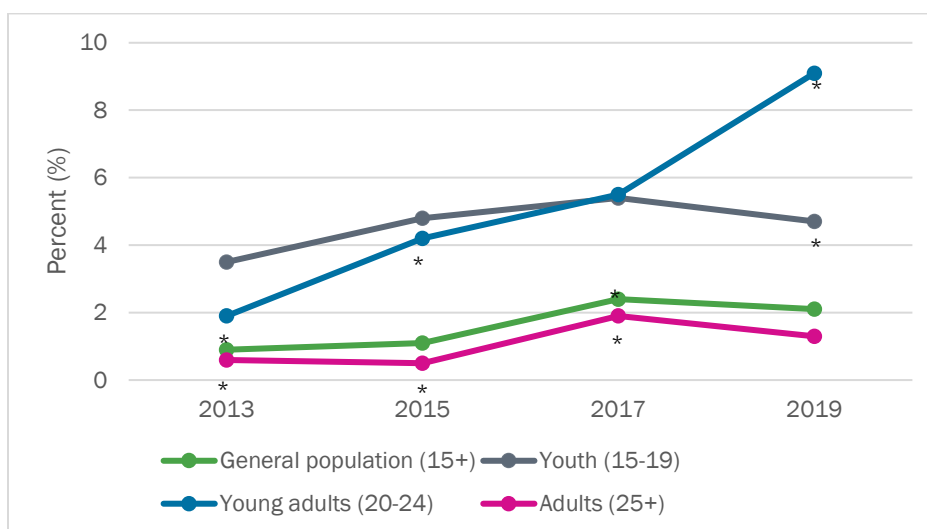


## Medical Use of Prescription Stimulants in Canada

### Self-Reported Use in the Past-Year

- **General population (age 15+):** According to data collected from the 2019 Canadian Alcohol and Drugs Survey (CADS), the prevalence of prescription stimulant use among the general population was 2.1%, representing approximately 660,000 people.<sup>2</sup> This was unchanged from 2017 (2.4%<sup>§</sup>) and represents a significant increase from both 2013 and 2015 (0.9% and 1.1%, respectively) (Figure 1).<sup>3,4,5</sup>
- **Youth and young adults (age 15–24):** Among people living in Canada, youth aged 15–19 and young adults aged 20–24 have the highest rates of past year prescription stimulants use (4.7%\* and 9.1%<sup>§</sup>, respectively, as of 2019).<sup>2</sup> The prevalence of use among young adults (aged 20–24) represents a continuous increase since 2013 (1.9%<sup>§</sup>).<sup>5</sup>
- **Adults (age 25+):** 1.3% of adults aged 25 years old and older living in Canada reported use of a prescription stimulants in 2019, unchanged from 2017 (1.9%<sup>§</sup>) and increased from both 2013 (0.6%<sup>§</sup>) and 2015 (0.5%<sup>§</sup>).<sup>2,3,4,5</sup>
- **Sex:** Data from the 2019 CADS survey indicates that there is no difference in past-year use of prescription stimulants among males and females (2.1%) (Figure 2).<sup>2</sup>
- **Provincial differences:** In 2019, CADS data indicated that the provinces with the lowest prevalence of past-year prescription stimulant use were Saskatchewan, British Columbia and Manitoba (0.8%, 0.9% and 1.1%, respectively), while Nova Scotia and Alberta had the highest prevalence (3.4% and 3.0%, respectively).<sup>2</sup> There is a significant difference between these two groups of provinces.

**Figure 1. Prevalence of self-reported past-year prescription stimulants use among people living in Canada by year and age group**



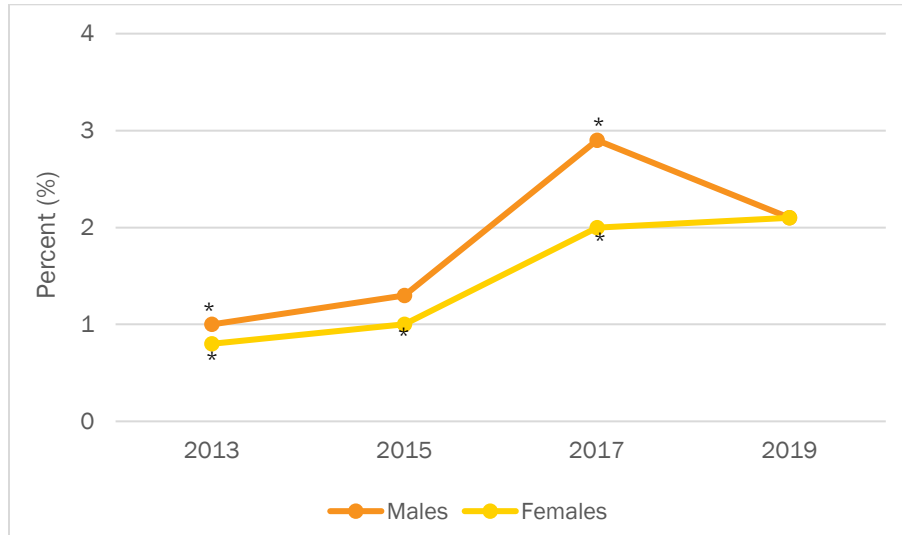
Source: CTADS 2013,<sup>5</sup> 2015,<sup>4</sup> 2017,<sup>3</sup> CADS 2019<sup>2</sup>

Note: Data identified with an asterisk (\*) should be interpreted with caution due to moderate sampling variability.

\* Moderate sampling variability, interpret with caution.



**Figure 2. Prevalence of self-reported past-year prescription stimulant use among people living in Canada by year and sex**



Source: CTADS 2013,<sup>5</sup> 2015,<sup>4</sup> 2017,<sup>3</sup> CADS 2019<sup>2</sup>

Note: Data identified with an asterisk (\*) should be interpreted with caution due to moderate sampling variability.

## Non-Medical Use of Prescription Stimulants in Canada

### Self-Reported Use in the Past-Year

While prescription stimulants are prescribed for therapeutic purposes, they can also be used for non-medical reasons. The risk for psychological and physical dependence (substance use disorder) increases with accessibility, multiple opportunities for diversion along the supply chain, and perceptions of relative safety compared to illegal drugs, among other factors. Stimulants are often used non-medically for both cognitive enhancement and recreational purposes (i.e., to get high). For the former purpose, they increase wakefulness, alertness, focus and attention. When stimulants are used without medical supervision, used for the wrong purpose or administered inappropriately, there is an increased risk for adverse effects and harms.

- **General population (age 15+):** In 2019, of the people living in Canada aged 15 and older who reported use of prescription stimulants in the past year, approximately 37%<sup>†</sup> reported non-medical use (includes to get high), a significant increase from 2017 (19%).<sup>2</sup>
- **Students:** According to the Canadian Student Tobacco, Alcohol and Drugs Survey (CSTADS), in 2018–2019, 1.6% of students living in Canada in grades 7–9 and 3.9%<sup>‡</sup> of students living in Canada in grades 10–12 reported using prescription stimulants in the past year to get high (Figure 3). Within the student population, males (3.5%) were more likely to report using prescription stimulants in the past year compared to females (2.0%).<sup>5</sup>

<sup>†</sup> Moderate sampling variability, interpret with caution.

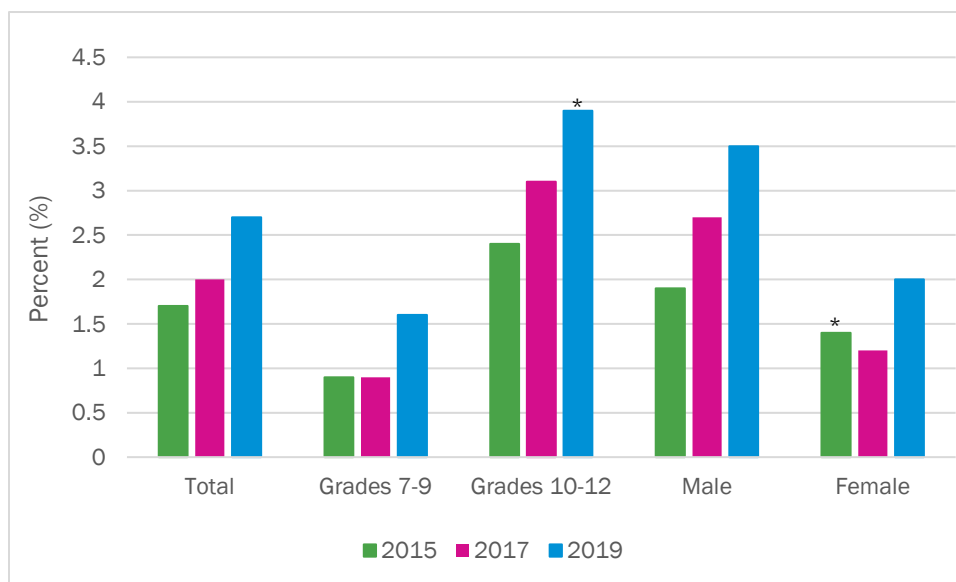
<sup>‡</sup> Moderate sampling variability, interpret with caution.



- **Postsecondary students:** Data from the 2019–2020 Canadian Postsecondary Education Alcohol and Drug use Survey (CPADS), which collects data among postsecondary students aged 17 to 25 years old who are studying at university or college in Canada, indicates that 11.9% (13.6% of males and 10.2% of females) of postsecondary students had used prescription stimulants in the past 12 months. Among those who reported using prescription stimulants in the past 12 months, 59.7% reported problematic use. More males (61.1%) reported problematic use than females (57.7%).<sup>7</sup>

Non-medical use of prescription stimulants is higher among postsecondary students, particularly male college students,<sup>20</sup> compared to both peers not attending school and working professionals.<sup>6,7</sup> Academic enhancement is often cited as the primary motive underlying non-medical use in this population. However, evidence suggests that postsecondary students who used prescription stimulants non-medically obtained lower grades at the end of their first year and gained no detectable academic advantages, as compared to peers who did not use prescription stimulants.<sup>8,14</sup>

**Figure 3. Prevalence of self-reported past-year non-medical use of prescription stimulants among students living in Canada by year, grade and sex**



**Source:** CSTADS 2015,<sup>9</sup> 2017<sup>8</sup>, 2019<sup>6</sup>

**Note:** Data identified with an asterisk (\*) should be interpreted with caution due to moderate sampling variability.

## Seizures in Canada

Seizure data provide a supply-related indicator of the availability of drugs in the illegal supply.

- **Drug Analysis Service:** The service analyzes suspected illegal drugs seized by Canadian law enforcement agencies. The drugs analyzed do not represent the total number of substances seized by law enforcement and should not be used to estimate the number or types of drugs available on the street. A single sample can contain more than one substance. Results from the Drug Analysis Service indicated that in 2021 the total number of samples containing stimulants (excluding cocaine and methamphetamine) was 4,063, a 5% decrease from 2020 (4,266 samples).<sup>16</sup>

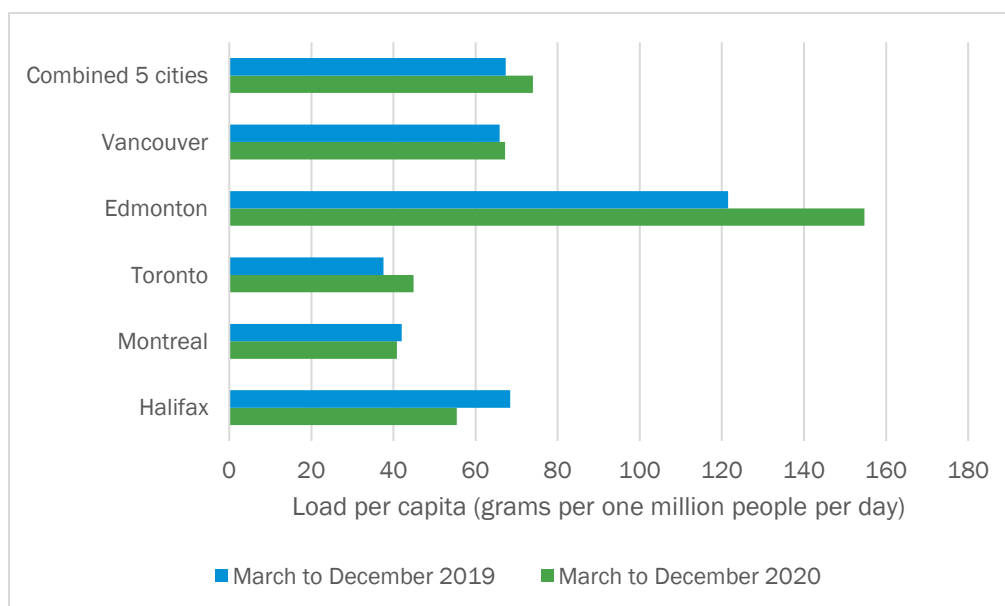


- **Provincial differences:** Detection of prescription stimulants was not the same across Canada. Results from the Drug Analysis Service indicated that the highest number of samples of stimulants (excluding cocaine and methamphetamine) identified in 2021 was in Quebec (1,722 samples) and Ontario (1,272 samples).<sup>16</sup>

### Wastewater-Based Estimates of Prescription Stimulants Use in Canada

The human body can excrete large levels of unmetabolized amphetamine, allowing for the detection of amphetamine in wastewater systems. An unknown portion of the amphetamines in the wastewater could be from methamphetamine use. Amphetamine concentrations in wastewater might parallel amphetamine consumption patterns in a community. A study by Statistics Canada collected wastewater in five major Canadian cities. Results revealed that from March to December 2019 and March to December 2020, per-capita loads of amphetamine in Montreal and Toronto were low (the average levels were less than 46 grams per million people per day) compared to the average amphetamine levels for Edmonton (the average level was 155 grams per million people per day between March and December 2020, approximately 30% higher than from March to December 2019 and over three times higher than in Montreal and Toronto). Vancouver and Halifax had the next highest levels (Figure 4).<sup>17</sup>

Figure 4. Wastewater-based estimates of amphetamine in Canada (2019 and 2020)



Source: Statistics Canada (2021)<sup>17</sup>

### Past-Year Non-Medical Use Internationally

**United States:** In 2020, the prevalence of people aged 12 and older in the United States who reported non-medical use of prescription stimulants in the past year was 1.8% (5.1 million). In 2020, the prevalence was higher among young adults aged 18–25 (4.8%) than among adolescents aged 12–17 (1.2%) or adults aged 26 or older (1.5%).<sup>15</sup>



## Harms Associated with Use

### *Impaired Driving*

Stimulants cause issues with driving performance, such as incorrect signalling, failing to stop at a red light, slow reaction times, and more aggressive and risky behaviour.<sup>10,18</sup> Data from the National Fatality Database shows that in Canada between 2014 and 2018, 12.5% of fatally injured drivers tested positive for CNS stimulants.<sup>18</sup> The data includes illegal stimulants like methamphetamine and does not provide information about whether CNS stimulant use was medical or non-medical.

A 2018 roadside survey conducted in British Columbia reported that stimulants (e.g., amphetamine, cocaine) were detected in 36% of all drug-positive drivers, while 70.5% tested positive for cannabis and 6.0% tested positive for opioids.<sup>19</sup> Presence of drugs were detected in oral fluid samples from drivers and subsequently tested in a toxicology laboratory.

To date, there is limited data available in Canada on other harms associated with prescription stimulant use. Collecting more information on the potential harms of prescription stimulants could allow for a greater understanding of the issue, from which health promotion and prevention programs could be developed. As well, more research on prescription stimulant use in Canada would provide a baseline against which the effectiveness of prevention strategies can be evaluated. Recently there has been a trend towards growing prescription stimulant use among young adults that should be monitored to determine if these medications are being used appropriately and whether there are any associated risks in their use.

There is also limited data available in Canada on the costs associated with prescription stimulant use specifically. The currently available data captures costs from a broader definition of stimulant use that includes methamphetamine among other stimulants (excluding cocaine) in the illegal drug supply.

### Additional Resources

- [Non-Medical Prescription Stimulant Use among Post-secondary Students](#) (Topic Summary)
- [The Effects of Psychoactive Prescription Drugs on Driving](#) (Report at a Glance)
- [First Do No Harm: Responding to Canada's Prescription Drug Crisis](#) (Report)
- [Stimulants, Driving and Implications for Youth](#) (Topic Summary)
- [Prevention of Prescription Stimulant Misuse among Youth](#) (Topic Summary)



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