

Prescription Stimulants

Key points

- The use of prescription stimulants among the Canadian general population has recently increased from about 1% (2013–2015) to 2% (2017).
- In Canada, the prevalence of prescription stimulant use is highest among youth aged 15–19 (5.4%) and young adults aged 20–24 (5.6%).
- Many post-secondary 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. 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 medications. Although the category of stimulants includes many substances, 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 people tamper with the pills to obtain euphoric effects from them. Such tampering can cause complications, such as 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. Prescription



stimulants in untampered form can also be used for non-medical* reasons. Motives for non-medical use of prescription 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.

Effects of Prescription Stimulant Use

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.

Long-term: Repeated use of stimulants can lead to feelings of hostility and paranoia. At high doses, they can lead to serious cardiovascular complications, including heart attack, stroke and lethal seizures. Long-term use can lead to the development of tolerance, which serves to reduce the effects of the drug and prompts people who use drugs to increase the dose to reinstate the desired effects. The potential for dependence and addiction increases with repeated use of higher doses.

As is the case with illicit and other legal prescription drugs, 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.

If prescription stimulants are used chronically, withdrawal symptoms—including fatigue, depression and disturbed sleep patterns—can emerge when the drugs are discontinued.

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. 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.¹

* Note: For the purposes of this document, “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.

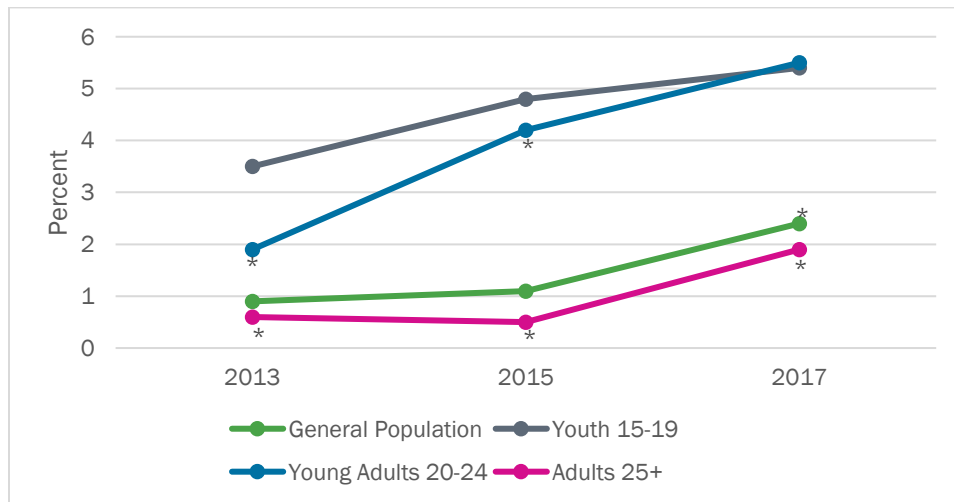


Self-reported Use

Past-Year Use of Prescription Stimulants in Canada

- **General population (age 15+):** According to data collected from the 2017 Canadian Tobacco, Alcohol, and Drugs Survey (CTADS), the prevalence of prescription stimulant use among the general population was 2.4%[†] in 2017 (representing approximately 714,000 people).² This prevalence of use represents an increase from both 2015 (1.1%) and 2013 (0.9%).^{3,4}
- **Youth (age 15–19) and young adults (age 20–24):** Among Canadians, youth aged 15–19 and young adults aged 20–24 have the highest rates of past year prescription stimulant use (5.4% and 5.5% respectively, as of 2017).²
- **Adults (age 25+):** 1.9%[†] of Canadian adults aged 25 and up reported use of a prescription stimulant in 2017, an increase from both 2015 (0.5%[†]) and 2013 (0.6%[†]).^{2,3,4}
- **Gender:** Data from the 2017 CTADS survey indicate that there is no significant difference in past-year use of prescription stimulants among males (2.9%[†]) and females (2.0%[†]).²
- **First Nations adults:** Among First Nations individuals aged 18 and older living on reserve or in northern First Nations communities across Canada, 1.1% reported past-year use of prescription stimulants in 2015–2016.⁵
- **First Nations youth:** Among First Nations youth aged 12–17 years, 1.1% reported use of prescription stimulants in 2015–2016.⁵

Figure 1. Prevalence of self-reported past-year prescription stimulant use among Canadians by year and age



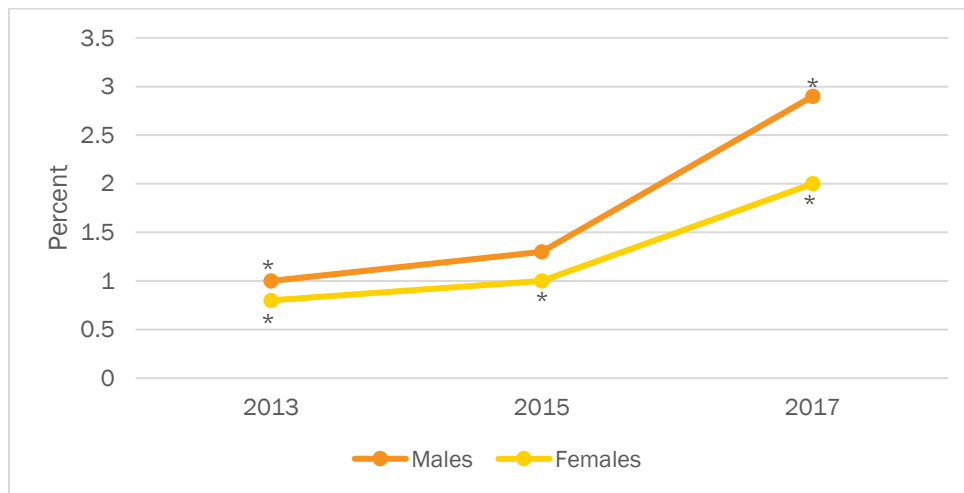
Source: CTADS 2013,⁴ 2015,³ 2017²

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 Canadians by year and sex



Source: CTADS 2013,⁴ 2015,³ 2017²

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

Non-medical Use of Prescription Stimulants

While prescription stimulants are prescribed for therapeutic purposes, they can also be used for non-medical reasons. The risk for psychological and physical dependence (addiction) increases with accessibility, multiple opportunities for diversion along the supply chain, and perceptions of relative safety compared to other illicit 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.

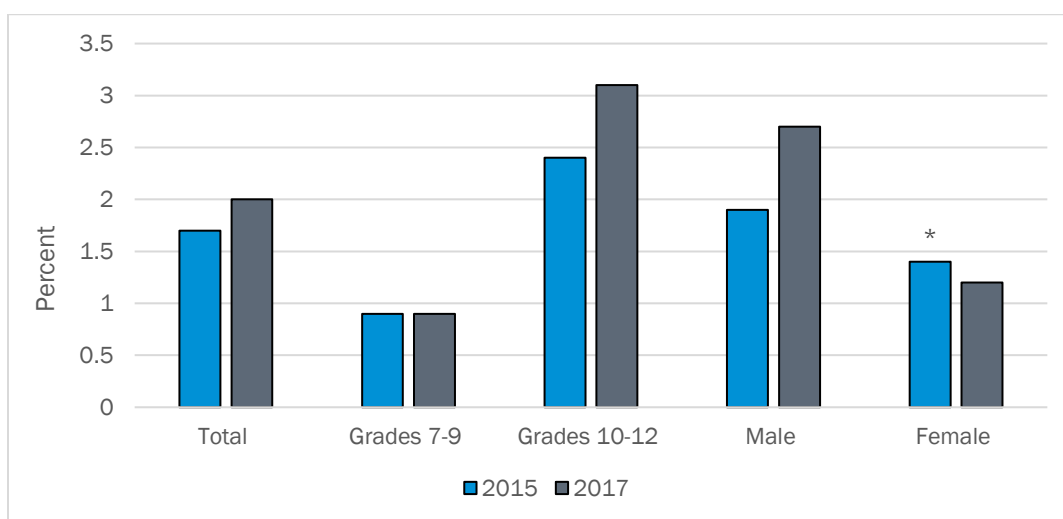
- **General population (age 15+):** In 2017, of the Canadians aged 15 and older who reported use of prescription stimulants in the past year, approximately 19% reported non-medical use (includes to get high). Among those who used prescription stimulants non-medically, use was more prevalent among males (23.9%) than females (10.4%).²
- **Students:** According to the Canadian Student Tobacco, Alcohol and Drugs Survey (CSTADS), in 2016–2017, 0.9% of Canadian students in grades 7–9 and 3.1% of Canadian students in grades 10–12 reported the past-year use of prescription stimulants to get high. Within the student population, males (2.7%) were more likely to report using prescription stimulants in the past year compared to females (1.2%).⁶
- **Ontario students:** In 2017, 2.3% of Ontario students in grades 7–12 reported using an ADHD drug for non-medical purposes, up from 1.4% in 2013. Males and females were equally likely to use these drugs for non-medical purposes.⁷
- **Post-secondary students:** Data from the spring 2016 National College Health Assessment Survey II, drawn from a convenience sample of 41 post-secondary institutions and therefore not representative of all post-secondary students in Canada, indicates that 4.5 % of post-secondary students had used stimulants that were not prescribed to them in the past 12 months, up from 3.7% reported in 2013.^{8,9} In 2016, 5.6% of males and 3.9% of females reported using



prescription stimulants that were not prescribed to them.⁸ Another study conducted on a post-secondary campus in Nova Scotia in 2018 indicated a prevalence of 5.4% for non-medical prescription stimulant use.¹⁰

- Non-medical use of prescription stimulants is higher among post-secondary students as compared to both peers not attending school and working professionals.^{11,12} Academic enhancement is often cited as the primary motive underlying non-medical use in this population. However, evidence suggests that post-secondary students who used prescription stimulants non-medically obtained lower grades at the end of their first year, as compared to peers who did not use stimulants.¹³

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



Source: CSTADS 2015,¹⁴ 2017⁶

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

International Comparison

- **United States:** In 2017, 1.8 million people aged 12 and older in the United States reported past-month non-medical use of prescription stimulants. Approximately 0.5% of adolescents (12–17 years old), 2.1% of young adults (18–25 years old) and 0.5% of adults (26 years and up) reported such use in the past month.¹⁵

Prescription Stimulant-related Harms

Among 12,856 young people (25 years of age and younger) who were prescribed stimulants in Ontario, stimulant initiation was related to a greater risk of hospitalization for psychosis or mania in the 60-days following initiation.¹⁶

To date, there is limited data available in Canada on the harms associated with prescription stimulant use. Collecting more information on the potential harms of stimulants could allow for a greater understanding of the issue, from which 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.



Prescribing Trends

Over the last five years in Ontario, there was a 29% increase in the monthly rate of individuals who received a prescription stimulant, from 4.7 individuals per 1,000 in 2013 to 6 in 1,000 in 2017.¹⁷ However, the proportion of potentially inappropriate prescriptions[‡] was low, and fell between the years 2013 and 2017 (from 0.12% to 0.06%). This reduction could be related to the implementation of the Narcotics Monitoring System in 2012, put in place to flag potentially inappropriate prescriptions.¹⁷


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)

[‡] As described in the Ontario Drug Policy Research Network report, “potentially inappropriate prescriptions” are defined as an early refill of a prescription stimulant that was from both a different doctor as well as a different pharmacy.



- 1 *Controlled Drugs and Substances Act*, S.C. 1996, c. 19, laws-lois.justice.gc.ca/eng/acts/C-38.8/index.html
- 2 Statistics Canada. (2017). *Canadian Tobacco, Alcohol and Drugs Survey: Summary of results for 2017*. Ottawa, Ont.: Author. Retrieved from www.canada.ca/en/health-canada/services/canadian-tobacco-alcohol-drugs-survey/2017-summary.html
- 3 Statistics Canada. (2015). *Canadian Tobacco, Alcohol and Drugs Survey: Summary of results for 2015*. Ottawa, Ont.: Author. Retrieved from www.canada.ca/en/health-canada/services/canadian-tobacco-alcohol-drugs-survey/2015-summary.html
- 4 Statistics Canada. (2013). *Canadian Tobacco, Alcohol and Drugs Survey: Summary of results for 2013*. Ottawa, Ont.: Author. Retrieved from www.canada.ca/en/health-canada/services/canadian-tobacco-alcohol-drugs-survey/2013-summary.html
- 5 First Nations Information Governance Centre. (2018). *National report of the First Nations Regional Health Survey, Phase 3: Volume 1*. Ottawa, Ont.: Author.
- 6 Health Canada. (2017). *Canadian Student Tobacco, Alcohol and Drugs Survey 2016–2017*. Retrieved from www.canada.ca/en/health-canada/services/canadian-student-tobacco-alcohol-drugs-survey/2016-2017-summary.html
- 7 Boak, A., Hamilton, H.A., Adlaf, E.M., Henderson, J.L., & Mann, R.E. (2018). *The mental health and well-being of Ontario students, 1991–2017: Detailed findings from the Ontario Student Drug Use and Health Survey (OSDUHS)*. (CAMH Research Document Series No. 47). Toronto, Ont.: Centre for Addiction and Mental Health.
- 8 American College Health Association. (2016). *National college health assessment II: Canadian reference group executive summary*. Hanover, MD: Author.
- 9 American College Health Association. (2013). *National college health assessment II: Canadian reference group data report*. Hanover, MD: Author.
- 10 Thompson, K., Mahu, I.T., Davis-MacNevin, P., Dobson, K., & Stewart, S.H. (2018). Personality and prescription drug use/misuse among first year undergraduates. *Addictive Behaviors*, 87, 122–130.
- 11 Ford, J. A., & Pomykacz, C. (2016). Non-medical use of prescription stimulants: A comparison of college students and their same-age peers who do not attend college. *Journal of Psychoactive Drugs*, 48(4), 253–260.
- 12 Franke, A.G., Bagusat, C., Rust, S., Engel, A., & Lieb, K. (2014). Substances used and prevalence rates of pharmacological cognitive enhancement among healthy subjects. *European Archives of Psychiatry and Clinical Neuroscience*, 264 (Suppl 1), S83–S90.
- 13 Arria, A.M., O’Grady, K.E., Caldeira, K.M., Vincent, K.B., & Wish, E.D. (2008). Nonmedical use of prescription stimulants and analgesics: associations with social and academic behaviours among college students. *Journal of Drug Issues*, 38(4), 1045–1060.
- 14 Health Canada. (2015). *Canadian Student Tobacco, Alcohol and Drugs Survey 2014–2015*. Retrieved from www.canada.ca/en/health-canada/services/canadian-student-tobacco-alcohol-drugs-survey/2014-2015-summary.html
- 15 Substance Abuse and Mental Health Services Administration. (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health*. (HHS publication No. SMA 17-5044, NSDUH Series H-52). Rockville, MD: Center for Behavioral Health Statistics and Quality. Retrieved from <https://www.samhsa.gov/data/>
- 16 Cressman, A. M., Macdonald, E. M., Huang, A., Gomes, T., Paterson, M. J., Kurdyak, P. A., ... & Canadian Drug Safety and Effectiveness Research Network. (2015). Prescription stimulant use and hospitalization for psychosis or mania: a population-based study. *Journal of Clinical Psychopharmacology*, 35(6), 667–671.
- 17 Martins, D., Greaves, S., Tadrus, M., Shearer, D., Sanders, J., Lee, K. ... Gomes, T. (2018). *Landscape of prescription stimulant use: Patterns, trends and geographic variation in Ontario, Canada*. Toronto, Ont.: Ontario Drug Policy Research Network.

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