

Sex, Gender and Cannabis



There is a need for continued research on sex and gender and the patterns, mechanisms, and effects of cannabis use, and how all people are differentially impacted by cannabis policies.

DEFINITIONS

Sex-related factors affect how your body reacts to substances, including how substances are metabolized, what effects they may have on your brain, and the development of tolerance and dependence. Female and male bodies have different genetic and physiological characteristics that affect these processes.

Gender-related factors affect your risks for use, exposure to marketing or exploitation, access to care and services, and the societal response to problematic use. Men, women, and gender diverse individuals experience these elements differently. In part, this is based on social roles and expectations that are dependent upon cultural context.

The cannabis policy landscape is rapidly changing. In Canada, cannabis was legalized on October 17, 2018, and medical cannabis has been available since 2001. In the USA, thirty-three states have legalized medical cannabis use, and eleven states have legalized recreational cannabis use. In 2019, reports of vaping related lung injuries and deaths emerged, mostly among young people, with many of these cases linked to vaping cannabis products.^[1]

Sex and gender based analyses of cannabis use patterns indicate the importance of sex and gender related factors to routes of administration, treatment for Cannabis Use Disorder (CUD) and assessing impairment.^[2-4]

Key Sex-Related Factors

- In animal research, female rats metabolized THC more rapidly^[5] although this may be reversed when CBD is also present.^[6]
- In a study measuring cognitive effects of cannabis use among young adults, males had a more pronounced negative effect with regard to psychomotor speed/sequencing ability.^[7]
- Females transition from initiation to regular use faster than males (similar to other substances), also referred to as “telescoping”.^[8,9]
- There is some evidence of higher sensitivity to the subjective effects of cannabis in females compared to males, particularly at low doses.^[10-12]

Key Gender-Related Factors

- Men and boys are more likely to report current^[13-15] and past cannabis use,^[16, 17] use cannabis more frequently^[17, 18] and in greater quantities^[17, 19] compared to women and girls. However, patterns may be changing; there is evidence from the USA that the gender gap in cannabis use is narrowing among adolescents.^[19]
- Boys and men report experimenting with more routes of administration (ROAs) and higher rates of use of inhalation ROAs including smoking and vaping.^[20-22]
- There is evidence from qualitative studies that girls and young women may use cannabis as a way of resisting dominant feminine ideals. For example, women may engage in patterns of use such as: using cannabis habitually, rolling joints, buying cannabis, and being able to ‘handle the high’.^[23, 24]

Sex, Gender and Cannabis

While research on sex, gender and cannabis is expanding, large gaps in the evidence remain. Most current evidence describes prevalence and patterns of use, with relatively few studies examining the influence of sex and gender on the health effects of cannabis use.

Further research on sex, gender and the patterns and effects of cannabis use is needed to better understand the benefits and risks for all genders, and inform more precise policy and practice responses.

- Simultaneous use of alcohol and cannabis appears to be higher in young men compared to young women^[25, 26] and is associated with substantial risks such as: greater impairment; heavier alcohol use; driving while impaired; and greater likelihood of comorbid substance use and mental health issues.
- Driving after cannabis use is more frequent among men.^[27-29] Evidence on being a passenger with someone who has used cannabis is mixed, with one study reporting greater rates of riding with someone who has used cannabis among men,^[27] and another reporting no gender differences.^[29]
- In a study conducted with lesbian, gay, bisexual and transgender (LGBT) individuals, the highest rates of cannabis use were reported by transgender men (12.5%) and sexual minority females (12.1%).^[30] Gender minority stress has been associated with cannabis use.^[31]

For information about cannabis and its effects while pregnant, breastfeeding, and parenting, visit: bccewh.bc.ca

Sex, Gender and Cannabis

REFERENCES

1. Krishnasamy, V.P., *Update: Characteristics of a nationwide outbreak of e-cigarette, or vaping, product use-associated lung injury—United States, August 2019–January 2020*. MMWR. Morbidity and Mortality Weekly Report, 2020. **69**.
2. Greaves, L. and N. Hemsing, *Sex and gender interactions on the use and impact of recreational cannabis*. International Journal of Environmental Research and Public Health, 2020. **17**(2): p. 509.
3. Brabete, A.C., et al., *Sex-and gender-based analysis in cannabis treatment outcomes: A systematic review*. International Journal of Environmental Research and Public Health, 2020. **17**(3): p. 872.
4. Hemsing, N. and L. Greaves, *Gender norms, roles and relations and cannabis-use patterns: A scoping review*. International Journal of Environmental Research and Public Health, 2020. **17**(3): p. 947.
5. Wiley, J.L. and J.J. Burston, *Sex differences in DELTA(9)-tetrahydrocannabinol metabolism and in vivo pharmacology following acute and repeated dosing in adolescent rats*. Neuroscience Letters, 2014. **576**: p. 51-55.
6. Britch, S.C., et al., *Cannabidiol-Δ9-tetrahydrocannabinol interactions on acute pain and locomotor activity*. Drug and Alcohol Dependence, 2017. **175**: p. 187-197.
7. Lisdahl, K.M. and J.S. Price, *Increased marijuana use and gender predict poorer cognitive functioning in adolescents and emerging adults*. Journal of the International Neuropsychological Society, 2012. **18**(4): p. 678-688.
8. Khan, S.S., et al., *Gender differences in cannabis use disorders: results from the National Epidemiologic Survey of Alcohol and Related Conditions*. Drug & Alcohol Dependence, 2013. **130**(1-3): p. 101-108.
9. Kerridge, B.T., et al., *DSM-5 cannabis use disorder in the National Epidemiologic Survey on Alcohol and Related Conditions-III: Gender-specific profiles*. Addictive Behaviors, 2018. **76**: p. 52-60.
10. Anderson, B.M., et al., *Sex, drugs, and cognition: Effects of marijuana*. Journal of Psychoactive Drugs, 2010. **42**(4): p. 413-424.
11. Cooper, Z.D. and M. Haney, *Investigation of sex-dependent effects of cannabis in daily cannabis smokers*. Drug and Alcohol Dependence, 2014. **136**: p. 85-91.
12. Fogel, J.S., et al., *Sex differences in the subjective effects of oral THC in cannabis users*. Pharmacology, Biochemistry & Behavior, 2017. **152**: p. 44-51.
13. Carliner, H., et al., *The widening gender gap in marijuana use prevalence in the U.S. during a period of economic change, 2002-2014*. Drug & Alcohol Dependence, 2017. **170**: p. 51-58.
14. Felton, J.W., et al., *Sex differences in self-report and behavioral measures of disinhibition predicting marijuana use across adolescence*. Experimental & Clinical Psychopharmacology, 2015. **23**(4): p. 265-274.
15. Farmer, R.F., et al., *Natural course of cannabis use disorders*. Psychological Medicine, 2015. **45**(1): p. 63-72.
16. Cuttler, C., L.K. Mischley, and M. Sexton, *Sex Differences in Cannabis Use and Effects: A Cross-Sectional Survey of Cannabis Users*. Cannabis and Cannabinoid Research, 2016. **1**(1): p. 166-175.
17. Foster, K.T., et al., *Gender Differences in Internalizing Symptoms and Suicide Risk Among Men and Women Seeking Treatment for Cannabis Use Disorder from Late Adolescence to Middle Adulthood*. Journal of Substance Abuse Treatment, 2016. **66**: p. 16-22.
18. Anderson, K.G., M. Sitney, and H.R. White, *Marijuana Motivations Across Adolescence: Impacts on Use and Consequences*. Substance Use & Misuse, 2015. **50**(3): p. 292-301.
19. Johnson, R.M., et al., *Past 15-year trends in adolescent marijuana use: Differences by race/ethnicity and sex*. Drug and Alcohol Dependence, 2015. **155**: p. 8-15.
20. Daniulaityte, R., et al., *A Twitter-based survey on marijuana concentrate use*. Drug and Alcohol Dependence, 2018. **187**: p. 155-159.
21. Noack, R., M. Hofler, and U. Lueken, *Cannabis use patterns and their association with DSM-IV cannabis dependence and gender*. European Addiction Research, 2011. **17**(6): p. 321-328.
22. Lee, D.C., et al., *Online survey characterizing vaporizer use among cannabis users*. Drug and Alcohol Dependence, 2016. **159**: p. 227-233.
23. Haines, R.J., et al., *"I couldn't say, I'm not a girl"—Adolescents talk about gender and marijuana use*. Social Science & Medicine, 2009. **68**(11): p. 2029-2036.
24. Dahl, S.L. and S. Sandberg, *Female cannabis users and new masculinities: The gendering of cannabis use*. Sociology, 2014. **49**(4): p. 696-711.
25. Subbaraman, M.S. and W.C. Kerr, *Simultaneous versus concurrent use of alcohol and cannabis in the National Alcohol Survey*. Alcoholism: Clinical and Experimental Research, 2015. **39**(5): p. 872-879.
26. Yurasek, A.M., E.R. Aston, and J. Metrik, *Co-use of alcohol and cannabis: A review*. Current Addiction Reports, 2017. **4**(2): p. 184-193.
27. Whitehill, J.M., F.P. Rivara, and M.A. Moreno, *Marijuana-using drivers, alcohol-using drivers, and their passengers: Prevalence and risk factors among underage college students*. JAMA Pediatrics, 2014. **168**(7): p. 618-624.
28. Jones, A.W., A. Holmgren, and F.C. Kugelberg, *Driving under the influence of cannabis: a 10-year study of age and gender differences in the concentrations of tetrahydrocannabinol in blood*. Addiction, 2008. **103**(3): p. 452-461.
29. O'Malley, P.M. and L.D. Johnston, *Driving after drug or alcohol use by U.S. high school seniors, 2001-2011*. American Journal of Public Health, 2013.
30. Smalley, K.B., J.C. Warren, and K.N. Barefoot, *Differences in health risk behaviors across understudied LGBT subgroups*. Health Psychology, 2016. **35**(2): p. 103-114.
31. Gonzalez, C.A., J.D. Gallego, and W.O. Bockting, *Demographic characteristics, components of sexuality and gender, and minority stress and their associations to excessive alcohol, cannabis, and illicit (noncannabis) drug use among a large sample of transgender people in the United States*. The Journal of Primary Prevention, 2017. **38**(4): p. 419-445.