

The co-use of alcohol and cannabis has received greater attention as states expand cannabis legalization. Increasing numbers of people are using cannabinoid products to enhance alcohol reinforcing effects or as a substitute for alcohol.

Evidence

Cannabis use and alcohol use disorder

Cannabis may increase the risk of heavy drinking and alcohol use disorder (AUD):

- In prospective studies, cannabis use is associated with increased risk of heavy drinking (consuming 5 or more drinks in a single day for males, and 4 or more drinks for females) and the development and maintenance of AUD.^{1,2}
- Rates of AUD are higher among cannabis users relative to nonusers, with approximately 60% of individuals with current cannabis use disorder (CUD) also meeting criteria for current AUD.³
- Co-use of cannabis and alcohol (i.e., using both substances but not necessarily on the same occasion) is associated with heavy drinking⁴ and alcohol-related physical and psychological consequences among young adults.⁵ The negative consequences of co-use, including increased alcohol consumption and alcohol-related problems,⁶⁻¹¹ are particularly pronounced for individuals who use cannabis and alcohol simultaneously (so the effects of each substance overlap).¹² Approximately one-third of young adult alcohol drinkers endorsed simultaneous cannabis and alcohol use in the past year.¹³
- Treatment studies suggest any cannabis use during and after alcohol treatment reduces the likelihood of sustained abstinence from alcohol and increases the risk of alcohol relapse.^{14,15}
- Conversely, reductions in cannabis use following CUD treatment have been associated with concurrent reductions in alcohol use.¹⁶



Cannabis use is associated with increased risk of heavy drinking

Cannabis as a substitute for alcohol

Although cannabis use appears to have a negative impact on alcohol treatment outcomes, there is also evidence of a nonlinear relationship between levels of cannabis use and alcohol outcomes in support of substitution of more frequent cannabis use for less frequent alcohol use for some individuals.^{17,18}

- Some studies that found substitution patterns suggest frequent cannabis use may be associated with reduced drinking among some people with AUD.^{15,17,19}
- Data on medical marijuana users (both general population and Veterans) suggest they drink less generally and on days when they use cannabis.²⁰⁻²⁴ Medical marijuana users also have fewer alcohol-related problems relative to individuals who use cannabis for recreational purposes.²¹⁻²⁵
- Differences among individual users may explain the mixed findings on substitution and complementary effects of cannabis on alcohol, including frequency of use, cannabinoid composition and potency, AUD diagnosis, demographics, and context of co-use.²⁴

Clinical implications

It is important to ask patients about their alcohol and cannabis use patterns: what cannabis formulations are used, modes of administration, and whether they use the two substances simultaneously. Screening for cannabis- and alcohol-related problems among individuals who co-use these substances is important. Patients should be cautioned that

simultaneous use of cannabis and alcohol can be associated with frequent and severe negative consequences.

Since cannabis use may increase the risk of heavy drinking, especially among those with a history of AUD, clinicians should counsel patients with AUD about this risk and recommend that patients with AUD avoid cannabis use.

Evidence suggests some patients might use cannabis as a strategy to help decrease heavy alcohol use. If patients use cannabis as a substitute for alcohol, it may be helpful to set harm reduction^{26,27} goals with the patient. Providers should counsel about the risk of increased use of both substances and the possibility of progression to problematic cannabis use when replacing alcohol. Evidence-based treatment options for AUD or reduction of heavy drinking^{28,29} should also be reviewed.

Bottom Line

More research is needed to improve our understanding of cannabis-alcohol interactions and the impact of cannabis use on alcohol treatment outcomes. Evidence we do have suggests cannabis and alcohol co-use is associated with increased alcohol-related consequences. Clinicians should evaluate the frequency and intensity of co-occurring use of cannabis and alcohol, and provide intervention as clinically indicated.

References

1. Blanco C, Hasin DS, Wall MM, et al. Cannabis use and risk of psychiatric disorders: prospective evidence from a US national longitudinal study. *JAMA Psychiat*. 2016;73(4):388-395.
2. Weinberger AH, Platt J, Goodwin RD. Is cannabis use associated with an increased risk of onset and persistence of alcohol use disorders? a three-year prospective study among adults in the United States. *Drug Alcohol Depend*. 2016;161:363-367.
3. Hayley AC, Stough C, Downey LA. DSM-5 cannabis use disorder, substance use and DSM-5 specific substance-use disorders: evaluating comorbidity in a population-based sample. *Eur Neuropsychopharmacol*. 2017;27(8):732-743.
4. Metrik J, Gunn RL, Jackson KM, Sokolovsky AW, Borsari B. Daily patterns of marijuana and alcohol co-use among individuals with alcohol and cannabis use disorders. *Alcohol Clin Exp Res*. 2018;42(6):1096-1104.
5. Gunn RL, Norris AL, Sokolovsky A, Micalizzi L, Merrill JE, Barnett NP. Marijuana use is associated with alcohol use and consequences across the first 2 years of college. *Psychol Addict Behav*. 2018;32(8):885-894.
6. Briere FN, Fallu JS, Descheneaux A, Janosz M. Predictors and consequences of simultaneous alcohol and cannabis use in adolescents. *Addict Behav*. 2011;36(7):785-788.
7. Patrick ME, Terry-McElrath YM, Lee CM, Schulenberg JE. Simultaneous alcohol and marijuana use among underage young adults in the United States. *Addict Behav*. 2019;88:77-81.
8. Subbaraman MS, Kerr WC. Subgroup trends in alcohol and cannabis co-use and related harms during the rollout of recreational cannabis legalization in Washington state. *Int J Drug Policy*. 2019.
9. Lipperman-Kreda S, Gruenewald PJ, Grube JW, Bersamin M. Adolescents, alcohol, and marijuana: context characteristics and problems associated with simultaneous use. *Drug Alcohol Depend*. 2017;179:55-60.
10. Linden-Carmichael AN, Van Doren N, Masters LD, Lanza ST. Simultaneous alcohol and marijuana use in daily life: implications for level of use, subjective intoxication, and positive and negative consequences. *Psychol Addict Behav*. 2020;34(3):447-453.
11. Yurasek A, Aston E, Metrik J. Co-use of alcohol and cannabis: a review. *Curr Addict Reports*. 2017;4(2):184-193.
12. Subbaraman MS, Kerr WC. Simultaneous versus concurrent use of alcohol and cannabis in the National Alcohol Survey. *Alcohol Clin Exp Res*. 2015;39(5):872-879.
13. Terry-McElrath YM, Patrick ME. Simultaneous alcohol and marijuana use among young adult drinkers: age-specific changes in prevalence from 1977 to 2016. *Alcohol Clin Exp Res*. 2018;42(11):2224-2233.
14. Aharonovich E, Liu X, Samet S, Nunes E, Waxman R, Hasin D. Postdischarge cannabis use and its relationship to cocaine, alcohol, and heroin use: a prospective study. *Am J Psychiatry*. 2005;162(8):1507-1514.
15. Subbaraman MS, Metrik J, Patterson D, Swift R. Cannabis use during treatment for alcohol use disorders predicts alcohol treatment outcomes. *Addiction*. 2017;112(4):685-694.
16. Dunn HK, Litt MD. Decreased drinking in adults with co-occurring cannabis and alcohol use disorders in a treatment trial for marijuana dependence: evidence of a secondary benefit? *Addict Behav*. 2019;99:106051.
17. Subbaraman MS, Barnett SB, Karriker-Jaffe KJ. Risks associated with mid level cannabis use among people treated for alcohol use disorder. *Alcohol Clin Exp Res*. 2019;43(4):690-694.
18. Subbaraman MS. Substitution and complementarity of alcohol and cannabis: a review of the literature. *Subst Use Misuse*. 2016;51(11):1399-1414.
19. Karoly HC, Ross JM, Prince MA, Zabelski AE, Hutchison KE. Effects of cannabis use on alcohol consumption in a sample of treatment-engaged heavy drinkers in Colorado. *Addiction*. 2021;116(9):2529-2537.
20. Gunn RL, Aston ER, Metrik J. Patterns of cannabis and alcohol co-use: substitution versus complementary effects. *Alcohol Res*. 2022;42(1):04.
21. Lin LA, Ilgen MA, Jannausch M, Bohnert KM. Comparing adults who use cannabis medically with those who use recreationally: results from a national sample. *Addict Behav*. 2016;61:99-103.
22. Metrik J, Bassett SS, Aston E, Jackson K, Borsari B. Medicinal versus recreational cannabis use among returning veterans. *Transl Issues Psychol Sci*. 2018;4(1):6-20.

23. Subbaraman MS, Kerr WC. Alcohol use and risk of related problems among cannabis users is lower among those with medical cannabis recommendations, though not due to health. *J Stud Alcohol Drugs*. 2018;79(6):935-942.
24. Lin LA, Ilgen MA, Jannausch M, Bohnert KM. Comparing adults who use cannabis medically with those who use recreationally: results from a national sample. *Addict Behav*. 2016;61:99-103.
25. Turna J, MacKillop J. Cannabis use among military veterans: a great deal to gain or lose? *Clin Psychol Rev*. 2021;84:101958.
26. Bravo AJ, Weinstein AP, Pearson MR. The relationship between risk factors and alcohol and marijuana use outcomes among concurrent users: a comprehensive examination of protective behavioral strategies. *J Stud Alcohol Drugs*. 2019;80(1):102-108.
27. Marlatt GA, Witkiewitz K. Update on harm-reduction policy and intervention research. *Annu Rev Clin Psychol*. 2010;6:591-606.
28. Patel AK, Balasanova AA. Treatment of alcohol use disorder. *JAMA*. 2021;325(6):596.
29. Witkiewitz K, Litten RZ, Leggio L. Advances in the science and treatment of alcohol use disorder. *Sci Adv*. 2019;5(9):eaax4043.

Suggested citation:

Metrik, J. *Cannabis and alcohol use*. The Systematically Testing the Evidence on Marijuana Project. May 2022. <https://www.cannabisevidence.org/clinician-resources/clinician-briefs/cannabis-and-alcohol-use/>

Acknowledgments: Thank you to Ashley Linden-Carmichael, PhD and Adrian J. Bravo, PhD for critically reviewing this document.

Author affiliations: Center for Alcohol and Addiction Studies, Brown University School of Public Health; Providence VAMC, Mental Health and Behavioral Sciences Service



U.S. Department of Veterans Affairs
Veterans Health Administration
Office of Rural Health

Funding provided by the U.S. Department of Veterans Affairs (VA) Office of Rural Health. Visit www.ruralhealth.va.gov to learn more.

