

CANNABIS USE AND GAMBLING

Cannabis use and gambling behavior commonly co-occur. Among adults using cannabis, there is nearly a 180% increased odds of also having gambled in the past year, and they are over 130% more likely to gamble several times per week, as compared to adults who do not use cannabis (1). This relationship is consistent at problematic levels, too. An estimated 30% of individuals with a cannabis use disorder also have a gambling disorder (2, 3).

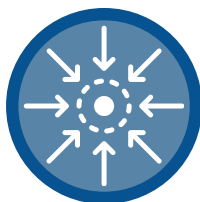
Although a number of contextual factors, such as dosage and tolerance, are important to consider in the relationship between cannabis and gambling, there is evidence to suggest that cannabis use may impair certain cognitive abilities associated with problem gambling. A meta-analysis of the relationship between cannabis and gambling identified a need for additional research on the impact of simultaneous cannabis use and gambling behaviors (4); however, certain cognitive functions may be relevant to problematic engagement in both behaviors.

Cognitive functions relevant to cannabis use and gambling



Learning & Memory

Cannabis intoxication not only impairs memory acutely, but it also may dampen memory and learning abilities over a longer term (5). Working memory problems are linked with disordered gambling behaviors (6).



Attention

The ability to maintain focus on a task may be impaired by cannabis use in real time, as well as chronically. Cannabis use at a younger age may additionally alter cognitive development, affecting attention abilities (3). Poor attention may result in mindlessness, contributing to subsequent harms in the context of gambling.



Decision-Making

Among individuals who report chronic or heavy cannabis use, certain decision-making abilities are impaired, like being able to accurately weigh rewards and consequences of a decision (7). Cannabis use may relate to reward-seeking, a feature of problem gambling.



Impulsivity

Research shows mixed findings for the relationship between cannabis use and impulsivity (3). Assessed by employing a gambling task, some findings show greater impulsive decision-making among individuals who used cannabis (7).

CANNABIS USE & PROBLEM GAMBLING IN ADULTS

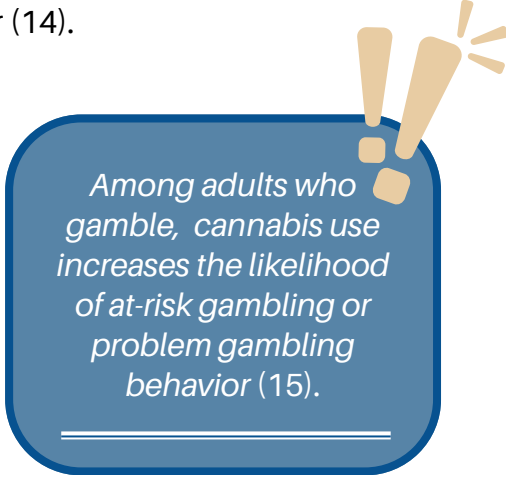
Cannabis use in the United States is growing, particularly among young adults (8). A 2021 survey found that 35% of young adults (18-25 years old) and 17% of adults 26 years and older reported past-year cannabis use (9). In a 2022 national U.S. survey, 44% of adults aged 19-30 and 28% aged 35-50 reported past-year use (8). Simultaneously, as mobile gambling and sports wagering became more accessible in the U.S., dollars spent on gambling have steadily increased in recent years (10). There is a need for closer investigation of the relationship between cannabis use and gambling, broadly, but researchers are already finding links between problematic cannabis use and problem gambling.

Problem Gambling and Problematic Cannabis Use Co-occur

- Problematic cannabis use was reported in 45% of a community sample of Oregon adults who screened positive for problem gambling (11). An earlier study with treatment-seeking adults observed higher rates of gambling among adults who used cannabis, prior to its widespread legalization, compared to those using other substances (12). However, the previously referenced Oregon study did not make the same observation (11).
- Among U.S. adults who used cannabis at some point in their lives, at-risk gambling behaviors and problem gambling behaviors were observed twice as frequently compared to adults who never used cannabis (13).
- A Canadian study with young adults showed that more frequent cannabis use (e.g., weekly or more) was related to at-risk gambling behavior (14).

Simultaneous Use of Cannabis While Gambling

- From a national sample of Canadian adults, 56% of a sample of adults who gamble reported using cannabis while gambling sometime over the past year (15). Those who gambled and reported cannabis use tended to have greater problem gambling severity, spend more time gambling, and engage in a larger range of gambling activities. Inversely, those who gambled but did not use cannabis were less likely to gamble online frequently or consume alcohol.
- A majority of respondents in a sample of U.S. adults who reported using cannabis while gambling described both positive and negative expectations of how cannabis would affect their gambling. Expected positive effects included feeling calmer, enjoying gambling more, and experiencing increased gambling skills, while expected negative effects included being more careless, more anxious, and having difficulty concentrating (16).



Among adults who gamble, cannabis use increases the likelihood of at-risk gambling or problem gambling behavior (15).

Recreational Cannabis Use is Associated with More Responsible Gambling

- In a Massachusetts study, adults who reported cannabis use in moderation, versus at a problematic level, were more likely to describe their approach to gambling as containing characteristics of positive play (17). Positive play is an approach to gambling that is intended to be more focused on the positive aspects of play utilizing responsible gambling strategies (18). Specifically, researchers observed a relationship between moderated cannabis use (e.g., using cannabis only when there are no other immediate responsibilities at hand, limiting the frequency of cannabis use) with honesty about how much control one has over gambling, deciding how much time and money to spend on gambling ahead of time, and taking responsibility for their gambling behavior (17).

CANNABIS USE & PROBLEM GAMBLING IN YOUTHS

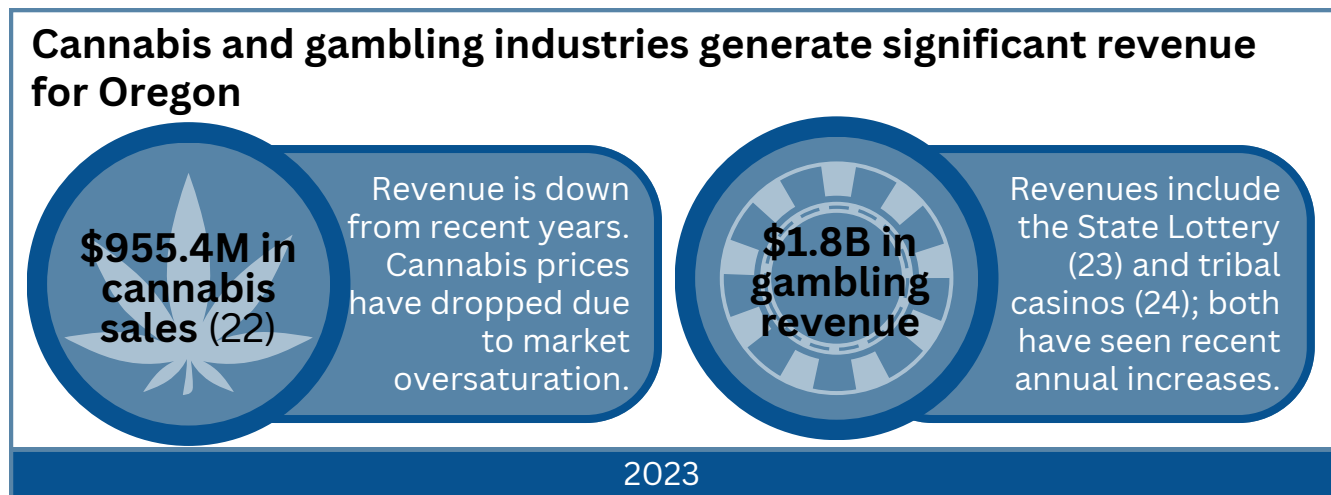
Youth who engage in gambling activities are more likely than their non-gambling counterparts to use cannabis; younger youth who gamble are more likely to also use cannabis (19). In fact, past-month cannabis use is a strong predictor of problem gambling among youth (20). Notably, unlike the adult samples represented in these studies, both gambling and cannabis use are illegal activities for adolescents and youth.

- In a Connecticut study with high-school students, adolescents who reported cannabis use at some point in their lives were more likely to report greater problem gambling severity, engage in more types of gambling activities, and report more health and functional impairments, compared to their peers who reported no history of cannabis use (21).
- When youth cannabis use and gambling behavior co-occur (20):
 - Gambling activities tend not to be skill-based (e.g., electronic gambling machines)
 - Length of engagement in gambling behaviors tends to be longer
 - Gambling is more likely to be a form of coping with anxiety
 - Using other substances while gambling is more common
 - The age of first starting to gamble tends to be younger

An important note is that these observations are relational, meaning that the current state of research suggests that cannabis use is associated with problem gambling risk factors, but not that one causes the other.

CANNABIS USE & GAMBLING IN OREGON

Recreational cannabis use was legalized in Oregon in 2015, at which point the state already had a relatively extensive gambling landscape. Increased access to cannabis products provides an opportunity to examine its relationship with gambling, which has also increased in prevalence.



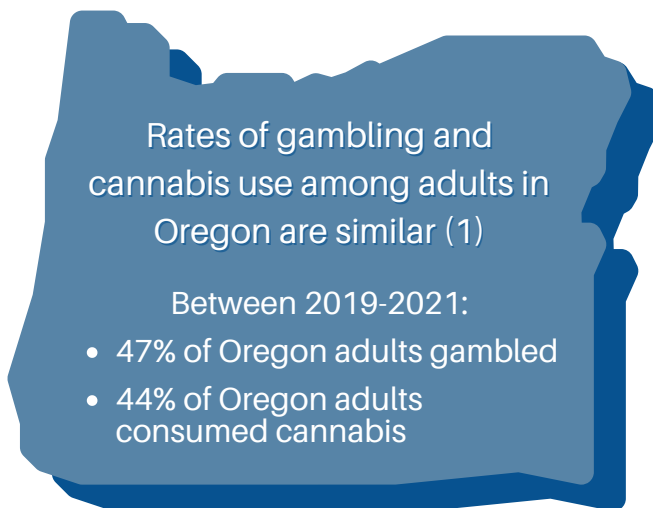
Prevalence & Frequency (1)

- Cannabis use is more common among Oregon adults who gamble. 57% of Oregonians who reported gambling also reported using cannabis, compared to 43% who reported gambling only.
- Oregonians who gambled and used cannabis were twice as likely to report gambling 2+ times per week.

Co-occurrence Risk Factors (1)

Oregonians are more likely to gamble and use cannabis when:

- Using gambling as a means of replacing lost income. Oregonians with co-occurring cannabis use and gambling were three times more likely to report using gambling to replace lost income.
- Using gambling as a coping mechanism for managing psychological stress and anxiety.
- Being younger, male gender, and having lower annual income.



PREVENTION & INTERVENTION

There is a paucity of research on the prevention of or combining treatment for comorbid problematic cannabis use and problem gambling. The disparity in research funding for the study of gambling disorder compared to other addictions is a driving factor in limited existing evidence.

Prevention of Problematic Cannabis Use & Gambling

- **Addressing disparities.** Compared by demographics, an Oregon study showed a greater likelihood of screening positive for gambling and cannabis use problems among younger adults who identify as Hispanic ethnicity (11); a lack of studies on co-occurring rates limits our knowledge about other disparities that may exist. Nonetheless, tailored prevention efforts to reach particularly at-risk communities may be one way to reduce disparities.
- **Understand the relationship.** In addition to being broadly understudied, there are no qualitative studies investigating cannabis use and gambling to date (25). Qualitative approaches may shed light on important implications of co-occurring engagement that can inform prevention and educational needs.

Interventions for Problematic Cannabis Use & Gambling

- **Timeline-followback (TLFB).** Treatment is informed by an assessment of the problem. The TLFB method of assessment is well-researched and often used for estimating substance use and gambling behavior patterns. Using an annotated calendar, clients can use cues to recall patterns of use over a previous period of time. Overlaying documented patterns of cannabis use and gambling engagement may shed light on how the two are related for an individual (3)
 - **Screening tools.** Like applying the TLFB method, using validated screening tools for problem gambling and problematic cannabis use can inform treatment and highlight interactions between the two behaviors (3). There are a variety of psychometrically supported brief screening tools for assessing cannabis use and gambling behaviors.
 - **Motivational interviewing.** It may be beneficial to help clients understand how cannabis use may be contributing to problem gambling (3). Using valid measures to track target behaviors and consumption while employing motivational interviewing strategies may help clients understand how the two are related for them and decide what change they would like to make.
 - **Cognitive behavioral strategies.** There is empirical support for similar cognitive behavioral strategies in the treatment of cannabis use disorder and gambling disorder. Interventions like goal-setting, self-monitoring, management of urge and withdrawal-symptoms, and refusal skill-building have been identified as effective in the treatment of both disorders (26).
-

SUMMARY

In general, despite its particular relevance in Oregon, the intersection between cannabis use and problem gambling is currently understudied. Researchers are calling for expanded funding on gambling to make advances in public health research on related topics, such as how cannabis and gambling are related, to inform effective prevention efforts and treatment strategies.

Key Findings

- Consuming substances, including cannabis, often occurs concurrently with gambling behaviors. The cognitive effects of certain substances, like cannabis, change the gambling experience in ways that may contribute to harm.
- Adolescents and adults who use cannabis and gamble are more likely to exhibit greater problem gambling severity. Concerningly, this relationship has been observed in youths as young as 6th grade.
- Environmental factors, stress, and demographics may also impact risk level and disparities. These should be addressed in prevention efforts.
- Intervention strategies used in treating other addictive behaviors may be helpful in treating comorbid cannabis use and gambling disorder, though more research is needed examining these types of treatment in this population.

REFERENCES

1. Marotta, J., Yamagata, G., & Coe, G. (2023, May 23-25). Stoner nation: The impact of cannabis use on gambling behavior [Conference presentation]. 18th International Conference on Gambling & Risk Taking, Las Vegas, NV, United States. https://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=1937&context=gaming_institute
2. Barnes, G. M., Welte, J. W., Tidwell, M. C. O., & Hoffman, J. H. (2015). Gambling and substance use: Co-occurrence among adults in a recent general population study in the United States. *International Gambling Studies*, 15(1), 55-71.
3. Winters, K. C., & Whelan, J. P. (2020). Gambling and cannabis use: Clinical and policy implications. *Journal of Gambling Studies*, 36(1), 223-241.
4. Punia, K., DeVillaeer, M., MacKillop, J., & Balodis, I. M. (2021). Understanding the overlap between cannabis use and gambling behaviour: A systematic review of empirical findings and consideration of policy implications. *Current Addiction Reports*, 8, 35-56.
5. Schoeler, T., & Bhattacharyya, S. (2013). The effect of cannabis use on memory function: An update. *Substance Abuse and Rehabilitation*, 4, 11-27.
6. Ngetich, R., Burleigh, T. L., Czako, A., Vékony, T., Németh, D., & Demetrovics, Z. (2023). Working memory performance in disordered gambling and gaming: A systematic review. *Comprehensive Psychiatry*, 126, 152408.
7. Moreno, M., Estevez, A. F., Zaldivar, F., Montes, J. M. G., Gutiérrez-Ferre, V. E., Esteban, L., et al. (2012). Impulsivity differences in recreational cannabis users and binge drinkers in a university population. *Drug and Alcohol Dependence*, 124, 355-362.
8. Patrick, M. E., Miech, R. A., Johnston, L. D., & O'Malley, P. M. (2023). Monitoring the Future Panel Study annual report: National data on substance use among adults ages 19 to 60, 1976-2022. Monitoring the Future Monograph Series. Ann Arbor, MI: Institute for Social Research, University of Michigan.
9. Substance Abuse and Mental Health Services Administration. (2022). Key substance use and mental health indicators in the United States: Results from the 2021 National Survey on Drug Use and Health (HHS Publication No. PEP22-07-01-005, NSDUH Series H-57). Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/data/report/2021-nsduh-annual-national-report>
10. American Gaming Association. (2024). State of the states 2024: The AGA analysis of the commercial gaming industry. Retrieved from: <https://www.americangaming.org/resources/state-of-the-states-2024/#:~:text=In%202023%2C%2032%20of%20the,levels%20of%20commercial%20gaming%20revenue>
11. Marotta, J., Yamagata, G., Irrgang, M., & Reohr, P. (2021). COVID-19 Impact Survey of Adult Oregonians Gambling, Gaming, Alcohol, and Cannabis Use. Salem, OR: Oregon Health Authority.
12. Toneatto, T., & Brennan, J. (2002). Pathological gambling in treatment-seeking substance abusers. *Addictive Behaviors*, 27(3), 465-469.
13. Hammond, C. J., Shirk, S. D., Foster, D. W., Potenza, N. B., Kraus, S. W., Mayes, L. C., Hoff, R. A., & Potenza, M. N. (2020). Cannabis use, problem-gambling severity, and psychiatric disorders: Data from the National Epidemiological Survey on Alcohol and Related Conditions. *Psychology of Addictive Behaviors*, 34(1), 230.
14. Mills, D. J., Marchica, L., Keough, M. T., & Derevensky, J. L. (2020). Exploring differences in substance use among emerging adults at-risk for problem gambling, and/or problem video gaming. *International Gambling Studies*, 20(3), 539-555.
15. McGrath, D. S., Williams, R. J., Rothery, B., Belanger, Y. D., Christensen, D. R., El-Guebaly, N., Hodgins, D. C., Nicoll, F., Shaw, C. A., Smith, G. J., & Stevens, R. M. (2023). Problem gambling severity, gambling behavior, substance use, and mental health in gamblers who do and do not use cannabis: Evidence from a Canadian national sample. *Addictive Behaviors*, 137, 107520.
16. Smith, E. H., McPhail, A., Lerma, M., Pfund, R. A., & Whelan, J. P. (2024). Expectations of How Acute Cannabis Use Affects Gambling Experiences and Behaviors. *Cannabis*, 7(2), 150.
17. Wood, R., Wohl, M., & Tabri, N. (2023). Positive play: Measuring responsible gambling in Massachusetts 2022. Massachusetts Gaming Commission. <https://massgaming.com/wp-content/uploads/Positive-Play-Measuring-Responsible-Gambling-in-Massachusetts-2022-Report.pdf>
18. GamRes. (n.d.). What we do. Retrieved July 31, 2024, from <https://gamres.org/what-we-do/>
19. Dingle, T., Marotta, J., Yamagata, G. (2020). 2020 Oregon student health survey supplemental report: Youth gambling. Oregon Health Authority.
20. Lee, G. P., Martins, S. S., Pas, E. T., & Bradshaw, C. (2014). Examining potential school influences on gambling among high school youth. *American Journal on Addictions*, 23(5), DOI:10.1111/j.1521-0391.2014.12142.x
21. Hammond, C. J., Pilver, C. E., Rugle, L., Steinberg, M. A., Mayes, L. C., Malison, R. T., Krishnan-Sarin, S., Hoff, R. A., & Potenza, M. N. (2014). An exploratory examination of marijuana use, problem-gambling severity, and health correlates among adolescents. *Journal of Behavioral Addictions*, 3(2), 90-101.
22. Oregon Liquor & Cannabis Commission. (n.d.) Harvest, price, & sales market data. Retrieved on July 31, 2024, from <https://www.oregon.gov/olcc/marijuana/pages/marijuana-market-data.aspx>
23. Oregon Lottery. (2023). Annual comprehensive financial report for the fiscal year ended June 30, 2023. <https://www.oregonlottery.org/wp-content/uploads/2023/12/FY-2023-Oregon-Lottery-ACFR-FINAL.pdf>
24. American Gaming Association. (2023). Commercial gaming revenue tracker. https://www.americangaming.org/wp-content/uploads/2024/01/CY-2024_CGRT_v2.pdf
25. Brodeur, M., Audette-Chapdelaine, S., Lavoie, N., Devault-Tousignant, C., Auger, A. M., Morvannou, A., Legare, A. A., Monsoon, E., Jutras-Aswad, D., & Hudon, C. (2023). A call for qualitative and mixed-methods research on gambling and cannabis. *Addictive Behaviors Reports*, 17, 100494.
26. Copeland, J., Swift, W., Roffman, R., & Stephens, R. (2001). A randomized controlled trial of brief cognitive-behavioral interventions for cannabis use disorder. *Journal of Substance Abuse Treatment*, 21, 55-64.