# Patients with a Diagnosed Gambling Disorder Have Far Higher Rates of Other Diagnosed Mental Health Conditions

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## Key Findings:

- For nearly every mental health condition we studied, rates of diagnoses were higher among patients with a diagnosed gambling disorder than among those without.
- Women with a diagnosed gambling disorder carried a heavier burden of pre-existing conditions: already more than 18 months before diagnosis, 61.9% had diagnosed depression (vs. 30.8% of comparison women), 60.0% had diagnosed anxiety (vs. 35.7%), 24.0% had diagnosed PTSD (vs. 10.3%), and 46.0% had diagnosed substance use disorder (vs. 19.9%).
- Men had lower rates of pre-existing mental health conditions than women but showed larger increases after their gambling diagnosis. In the 18 months following diagnosis, 14.6% were newly diagnosed with depression (vs. 3.5% of comparison men) and 11.3% with a substance use disorder (vs. 4.1%).

Gambling disorder is a pattern of persistent, recurrent gambling that continues despite serious personal, family, or financial harm.[1] We previously reported a growing rate of people newly diagnosed with gambling disorders in the U.S.[2] Interest in its health consequences has grown as sports betting has been legalized across much of the United States and as prediction-market platforms such as Polymarket and Kalshi have expanded access to real-money wagering. Gambling disorder has long been known to occur alongside other mental health conditions, but the order in which these conditions arise has been difficult to establish.

We studied 13,533 U.S. patients newly diagnosed with a gambling disorder during an outpatient visit between January 2017 and May 2026 and matched each of them to four patients who had an outpatient visit on the same date but no gambling diagnosis (54,132 comparison patients). Matching was done on age, sex, rurality and social vulnerability based on latest address, and date of the outpatient visit. We measured the share of patients with another mental health diagnosis in three time windows relative to the gambling diagnosis or matched encounter: more than 18 months before, within the 18 months before, and within the 18 months after.

Among women, a gambling disorder diagnosis was associated with substantially higher diagnosis rates of nearly every mental health condition studied, both before and after the gambling disorder diagnosis, compared with women without a gambling disorder diagnosis, as seen in Figure 1. The gap was large well before the gambling disorder diagnosis: more than 18 months prior, 61.9% of women who would go on to have a diagnosed gambling disorder had a depression diagnosis versus 30.8% of comparison women, 60.0% had an anxiety diagnosis versus 35.7%, and 24.0% had a PTSD diagnosis versus 10.3%. In the 18 months after the gambling disorder diagnosis, personality disorders were diagnosed in 3.0% of women with a gambling disorder versus 0.3% of comparison women, and suicidal ideation was diagnosed in 4.9% versus 0.6%.

## Prevalence of Other Mental Health Conditions Among Women with a Gambling Disorder Diagnosis Compared to Those Without

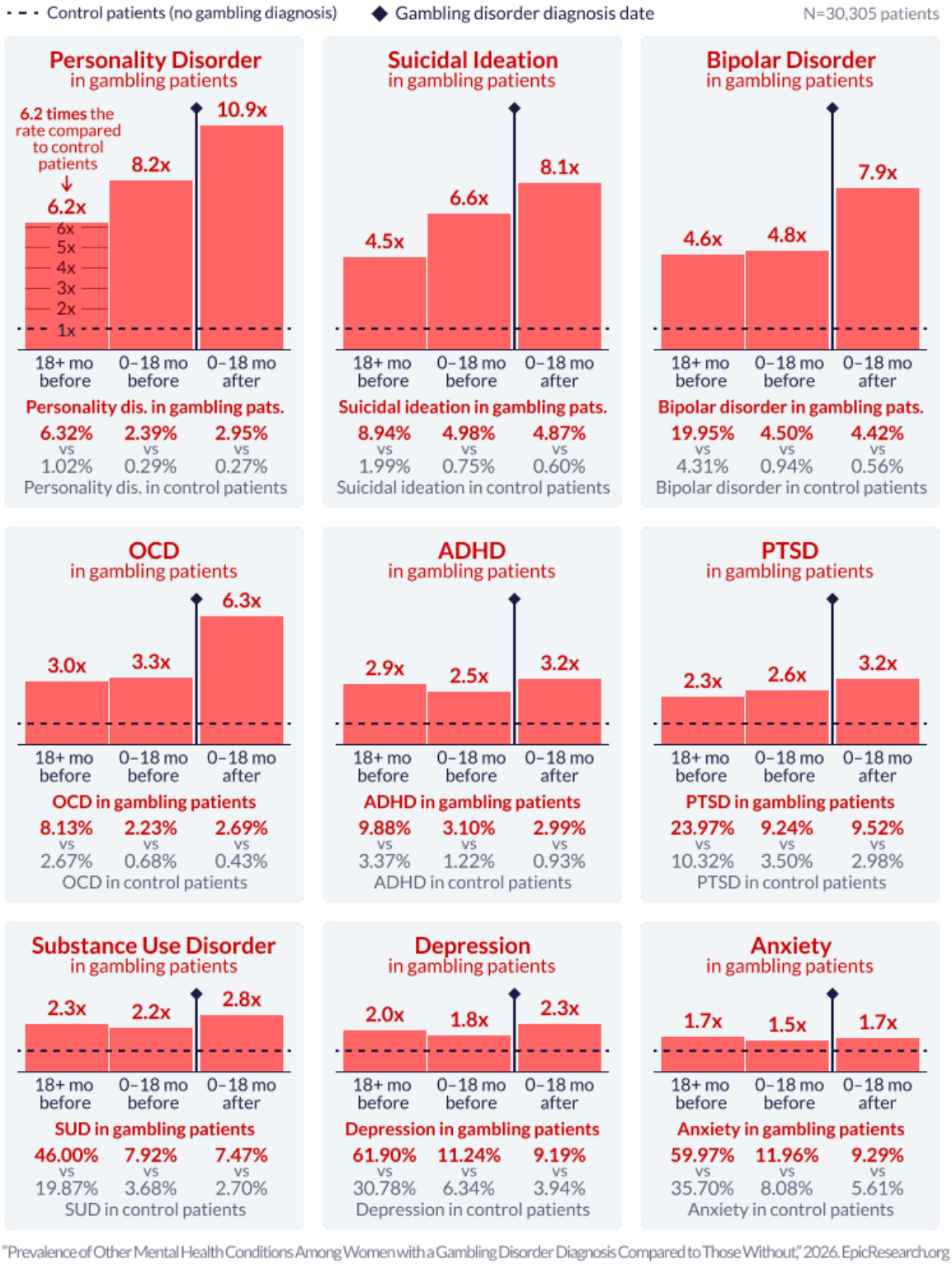


*Figure 1. The share of female patients with another mental health diagnosis by the presence of a gambling disorder diagnosis and relativity to index date.*

The same bidirectional pattern held among men, though their pre-diagnosis rates were lower in absolute terms and their post-diagnosis increases were larger, as seen in Figure 2. In the 18 months after a gambling disorder diagnosis, men were newly diagnosed with other mental health conditions at substantially higher rates than comparison men, including depression (14.6% vs. 3.5% of comparison men), anxiety (12.6% vs. 5.0%), substance use disorder (11.3% vs. 4.1%), and suicidal ideation (6.0% vs. 0.9%). As among women, ADHD and OCD showed more modest gaps.

## Prevalence of Other Mental Health Conditions Among Men with a Gambling Disorder Diagnosis Compared to Those Without

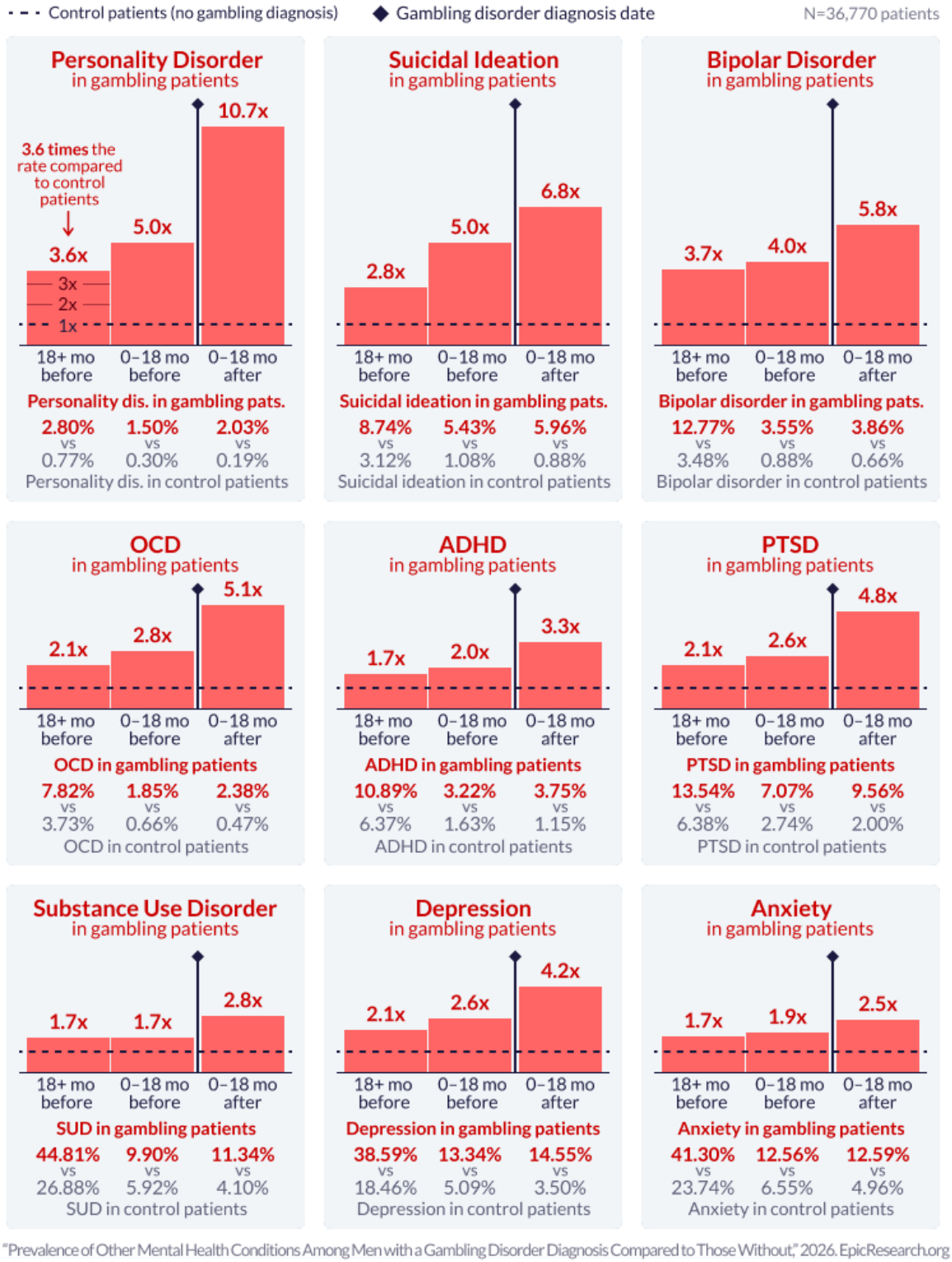


*Figure 2. The share of male patients with another mental health diagnosis by the presence of a gambling disorder diagnosis and relativity to index date.*

Because elevated rates appeared on both sides of the index date in both sexes, the data are consistent with a bidirectional relationship rather than other mental illness simply following gambling or gambling simply following other mental illness. One contributor to the observed gap might be that patients already engaged in mental health care within a health system may be more likely to have a gambling disorder recognized and documented than patients not receiving such care. Similarly, patients seeking care for gambling issues might be more likely to be evaluated for other mental health conditions than other patients. The differences persisted across strata of age, rurality, and social vulnerability, indicating the association is not confined to any one subgroup.

*These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 310 million patient records from 2,200 hospitals and more than 50,000 clinics from all 50 U.S. states, Canada, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientist. The two teams came to similar conclusions. Graphics by Brian Olson.*

## References


1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. American Psychiatric Association; 2013.
2. Bartelt K, Cox C, Deckert J, Fox B, Sahakian S. Gambling Disorder Diagnoses Have Risen More Than 60% in States That Legalized Sports Betting. Epic Research. https://epicresearch.org/articles/gambling-disorder-diagnoses-have-risen-more-than-60-in-states-that-legalized-sports-betting. Accessed on July 2, 2026.


## Data Definitions

| Term | Definition |
|---|---|
| Study period | 1/1/2017 to 5/1/2026 |
| Study population: inclusion | Patients meeting all of the following:<br>• Residence in the U.S.<br>• At least one outpatient face-to-face encounter more than 18 months before the **index date**<br>Source filtering limited to departments with at least one submitted gambling disorder diagnosis. |
| Exposure population | Patient with a first instance of a **gambling disorder** diagnosis during the study period<br>Qualifying diagnosis occurs in an **outpatient face-to-face encounter** |
| Control population | Any patient with an **outpatient face-to-face encounter** who has no history of a **gambling disorder**, matched 1-to-4 on **index date,** Evaluated Sex, index date, RUCA category, SVI quintile, and age in years to the **exposure population** |
| Study population: exclusion | Any **gambling disorder** diagnosis prior to the start of the **study period** |
| Index date | Exposure population: Date of first **gambling disorder** diagnosis in an **outpatient face-to-face encounter**<br>Control Population: Date of the matched **outpatient face-to-face encounter** |
| Outcomes | Presence of a **mental health conditions** diagnosis, measured in three windows relative to the **index date**: more than 18 months before, within 18 months to 1 day before, and 0 to 18 months after |
| Gambling disorder | A billing, encounter, or problem list diagnosis with ICD-10-CM code F63.0 (pathological gambling) or Z72.6 (gambling and betting) |

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|---|---|
| Outpatient face-to-face encounter | A department with a type of Emergency, Hospital Outpatient Visit, Office Visit, Well Child, Follow-up, Telemedicine, Urgent Care, Walk-In, Routine Prenatal, Postpartum Visit, or Fetal Care Consult |
| Mental health conditions | A billing, encounter, or problem list diagnosis for any of: **depression**, **anxiety**, **bipolar disorder**, **substance use disorder**, **suicidal ideation / attempt**, **PTSD / trauma**, **personality disorders**, **ADHD**, or **OCD** |
| Depression | A diagnosis with ICD-10-CM code F32*, F33*, F06.31*, F06.32*, or F34.1* |
| Anxiety | A diagnosis with ICD-10-CM code F40*, F41*, F06.4*, F93.0*, or F94.0* |
| Bipolar disorder | A diagnosis with ICD-10-CM code F31* |
| Substance use disorder | A billing, encounter, or problem list diagnosis with ICD-10-CM code F10*–F19* |
| Suicidal ideation / attempt | A diagnosis with ICD-10-CM code R45.851 or T14.91 |
| Personality disorders | A diagnosis with ICD-10-CM code F60* |
| PTSD/trauma | A diagnosis with ICD-10-CM code F43.1* |
| ADHD | A diagnosis with ICD-10-CM code F90* |
| OCD | A diagnosis with ICD-10-CM code F42*, R46.81, F98.4, F98.8, or F98.9 |
| Model specifications | Descriptive characterization with a matched comparison cohort and temporal directionality windows. |
| Limitations | Bidirectionality: the gambling–mental-health relationship is strongly bidirectional, so a one-directional framing is unsupportable, and the directionality windows characterize but do not resolve causal direction.<br>Observation-time asymmetry: open-ended "before" windows versus a capped 18-month "after" window can bias toward "mental health precedes gambling."<br>Detection / Berkson bias: gambling disorder is coded mainly among already-engaged patients, potentially inflating comorbidity associations; the negative-control cohort is the primary defense.<br>Severe under-ascertainment: stigma, lack of routine screening, and few reimbursable treatment pathways mean coded gambling disorder captures a small, non-representative subset of true cases. SDOH and screening capture in Cosmos is thin; absence of a code does not indicate absence of need.<br>Care outside Epic-using systems (specialty addiction treatment, Gamblers Anonymous, financial counseling) is not available in the data. |

## Table 1. Prevalence of Other Mental Health Conditions Among Women with a Gambling Disorder Diagnosis Compared to Those Without

| Condition | Window | Gambling Cases % | Comparison % |
|---|---|---|---|
| Depression | >18 mo before | 61.90 | 30.78 |
| Depression | Within 18 mo before | 11.24 | 6.34 |
| Depression | Within 18 mo after | 9.19 | 3.94 |
| Anxiety | >18 mo before | 59.97 | 35.70 |
| Anxiety | Within 18 mo before | 11.96 | 8.08 |
| Anxiety | Within 18 mo after | 9.29 | 5.61 |
| Substance use disorder | >18 mo before | 46.00 | 19.87 |
| Substance use disorder | Within 18 mo before | 7.92 | 3.68 |
| Substance use disorder | Within 18 mo after | 7.47 | 2.70 |
| PTSD | >18 mo before | 23.97 | 10.32 |
| PTSD | Within 18 mo before | 9.24 | 3.50 |

| | | | |
|---|---|---|---|
| PTSD | Within 18 mo after | 9.52 | 2.98 |
| Bipolar disorder | >18 mo before | 19.95 | 4.31 |
| Bipolar disorder | Within 18 mo before | 4.50 | 0.94 |
| Bipolar disorder | Within 18 mo after | 4.42 | 0.56 |
| ADHD | >18 mo before | 9.88 | 3.37 |
| ADHD | Within 18 mo before | 3.10 | 1.22 |
| ADHD | Within 18 mo after | 2.99 | 0.93 |
| Suicidal ideation | >18 mo before | 8.94 | 1.99 |
| Suicidal ideation | Within 18 mo before | 4.98 | 0.75 |
| Suicidal ideation | Within 18 mo after | 4.87 | 0.60 |
| OCD | >18 mo before | 8.13 | 2.67 |
| OCD | Within 18 mo before | 2.23 | 0.68 |
| OCD | Within 18 mo after | 2.69 | 0.43 |
| Personality disorders | >18 mo before | 6.32 | 1.02 |
| Personality disorders | Within 18 mo before | 2.39 | 0.29 |
| Personality disorders | Within 18 mo after | 2.95 | 0.27 |

## Table 2. Prevalence of Other Mental Health Conditions Among Men with a Gambling Disorder Diagnosis Compared to Those Without

| Condition | Window | Gambling Cases % | Comparison % |
|---|---|---|---|
| Depression | >18 mo before | 38.59 | 18.46 |
| Depression | Within 18 mo before | 13.34 | 5.09 |
| Depression | Within 18 mo after | 14.55 | 3.50 |
| Anxiety | >18 mo before | 41.30 | 23.74 |
| Anxiety | Within 18 mo before | 12.56 | 6.55 |
| Anxiety | Within 18 mo after | 12.59 | 4.96 |
| Substance use disorder | >18 mo before | 44.81 | 26.88 |
| Substance use disorder | Within 18 mo before | 9.90 | 5.92 |
| Substance use disorder | Within 18 mo after | 11.34 | 4.10 |
| PTSD | >18 mo before | 13.54 | 6.38 |
| PTSD | Within 18 mo before | 7.07 | 2.74 |
| PTSD | Within 18 mo after | 9.56 | 2.00 |
| Bipolar disorder | >18 mo before | 12.77 | 3.48 |
| Bipolar disorder | Within 18 mo before | 3.55 | 0.88 |
| Bipolar disorder | Within 18 mo after | 3.86 | 0.66 |
| ADHD | >18 mo before | 10.89 | 6.37 |
| ADHD | Within 18 mo before | 3.22 | 1.63 |
| ADHD | Within 18 mo after | 3.75 | 1.15 |
| Suicidal ideation | >18 mo before | 8.74 | 3.12 |
| Suicidal ideation | Within 18 mo before | 5.43 | 1.08 |
| Suicidal ideation | Within 18 mo after | 5.96 | 0.88 |
| OCD | >18 mo before | 7.82 | 3.73 |
| OCD | Within 18 mo before | 1.85 | 0.66 |
| OCD | Within 18 mo after | 2.38 | 0.47 |
| Personality disorders | >18 mo before | 2.80 | 0.77 |
| Personality disorders | Within 18 mo before | 1.50 | 0.30 |
| Personality disorders | Within 18 mo after | 2.03 | 0.19 |