

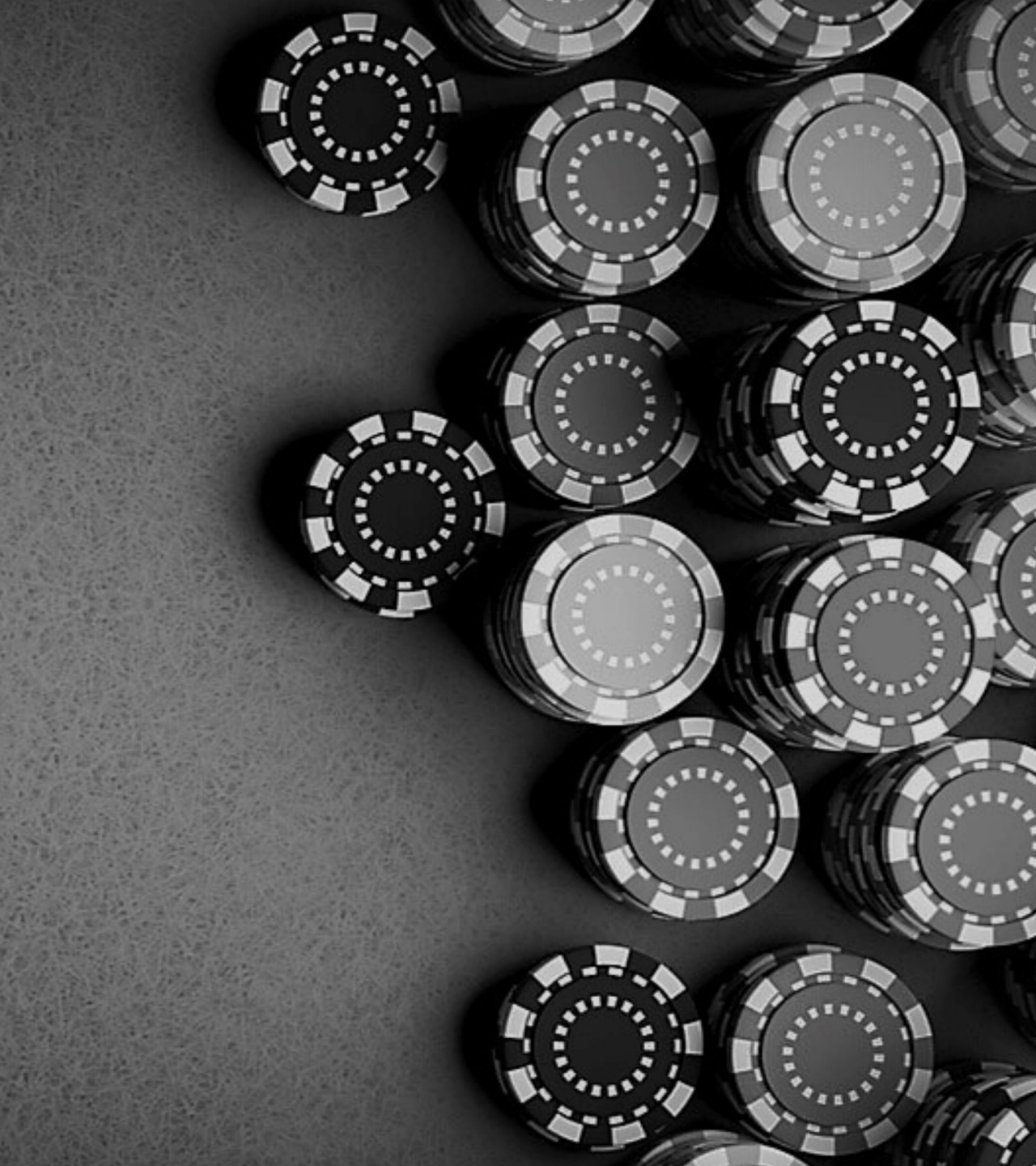


ASAM REVIEW COURSE 2026

Behavioral Addiction: Criteria, Challenges and Considerations

Faye Chao, MD

Assistant Professor, Department of Psychiatry
Icahn School of Medicine at Mount Sinai
New York, NY





Financial Disclosure

Faye Chao, MD

- No relevant disclosures

LEARNING OBJECTIVE

Describe the theoretical framework for behavioral addiction, criteria for diagnosis and evidence-based treatment strategies.

Presentation Outline

- Historical background
- Gambling Disorder (including sports betting)
- Internet Gaming Disorder

Essential Features

- Failure to resist an . . .
 - impulse
 - drive
 - temptation

. . . to perform an act that is harmful to oneself or others.

Impulsivity vs. Compulsivity

- Both show inability to refrain from repetitive behaviors.
- Impulsivity is driven by an effort to obtain arousal and gratification.
- Compulsivity is driven by an effort to reduce anxiety.

History of diagnosis

- Classified as:
 - Obsessive-compulsive spectrum disorders
 - Impulse-control disorders
 - By-products of mood disorders
 - Now: substance-related and addictive disorder

DSM-5

- Substance-related and Addictive Disorders
 - Gambling disorder
- Conditions for Further Study
 - Internet gaming disorder
- Not included at all (“insufficient evidence”)
 - Other internet or technology-related behaviors (social media, TV, etc.)
 - Sex, exercise, shopping, food, etc.

Gambling Disorder

Gambling Disorder

DSM-IV-TR

Pathological Gambling

as



Impulse-Control Disorder

DSM-5

Gambling Disorder

as

Substance-Related and
Addictive Disorder

Clinical Presentation for GD

- *Five DSM-5 Addiction Criteria*

Plus

- “Chases” one’s losses
- Lies to conceal the extent of their gambling
- Relies on others for money
- Gambles when feeling distressed
(Specifiers: episodic or persistent)

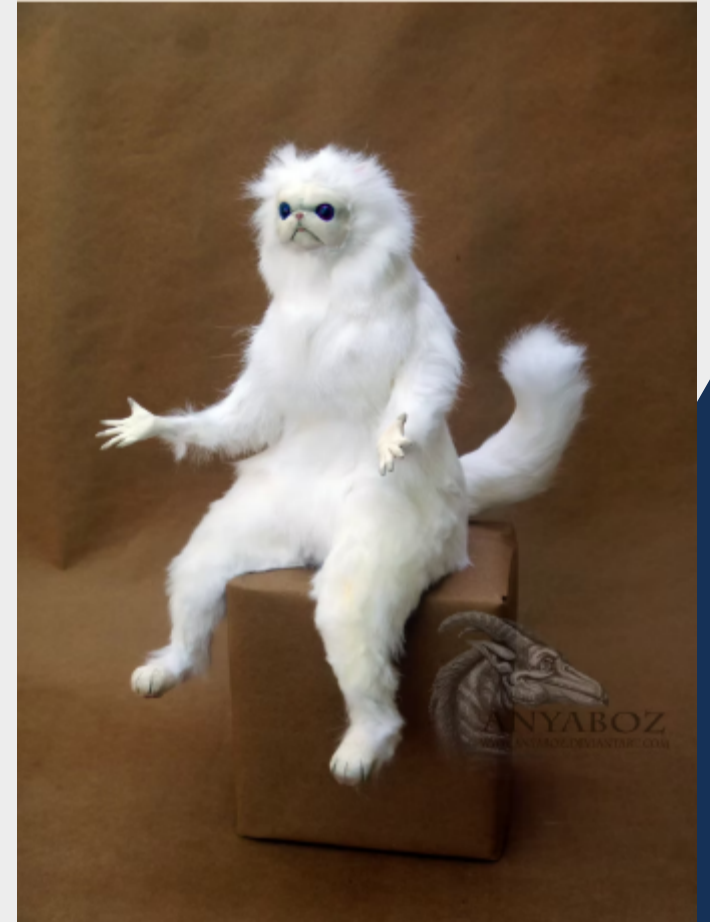
Phases

- Winning Phase
- Loss Phase
- Desperation Phase
- Hopelessness Phase

Blanco C, Cohen O, Luján JJ, et al: Pathological gambling and substance use disorders, in Substance Dependence and Co-Occurring Psychiatric Disorders: Best Practices for Diagnosis and Treatment. Edited by Nunes EV, Selzer J, Levounis P, Davies CA. New York, Civic Research Institute, 2010.

Screening Tools

- Questions about gambling behaviors should be included in addiction assessments
- Several validated screening tools exist
 - South Oaks Gambling Screen (SOGS)
 - Problem Gambling Severity Index (PGSI)
 - Massachusetts Gambling Screen
 - Lie-Bet Questionnaire



The Lie/Bet Questionnaire

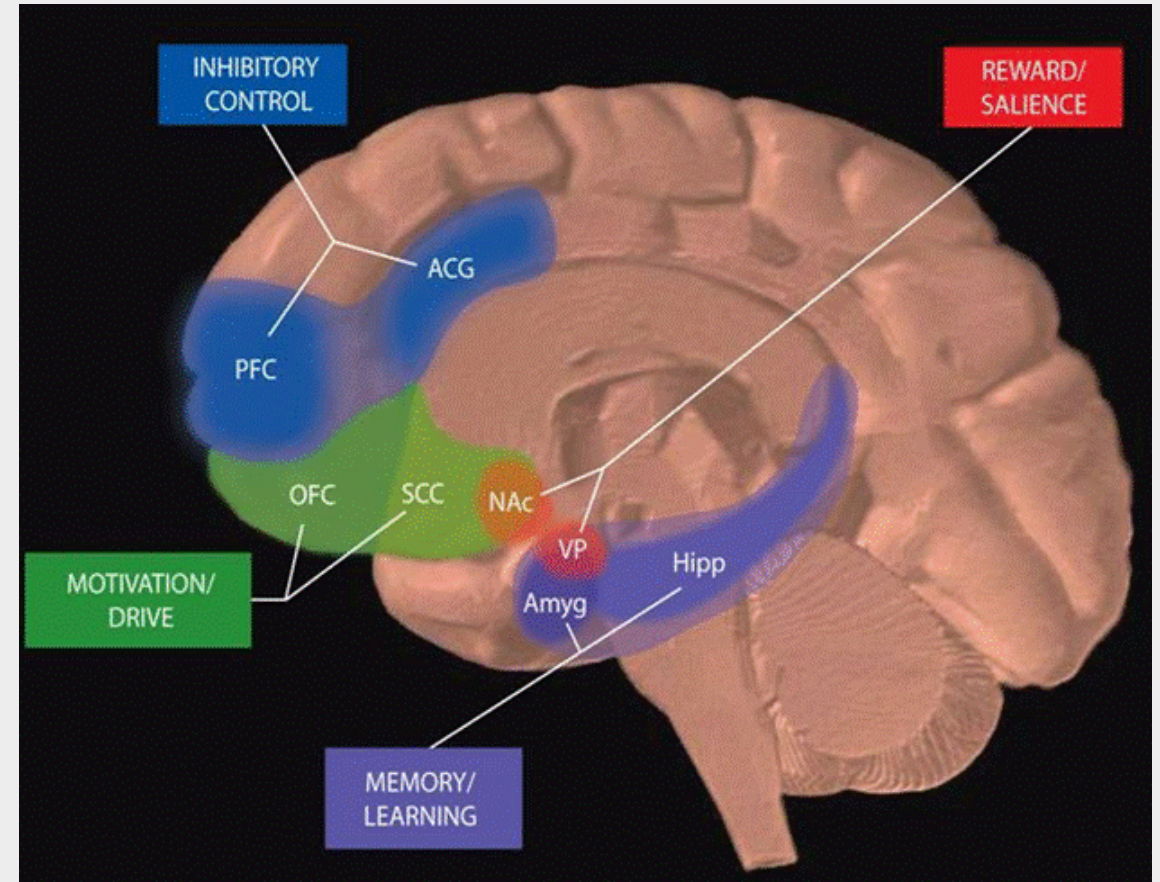
- The Lie/Bet Questionnaire
 - Have you ever felt the need to bet more and more money?
 - Have you ever had to lie to people important to you about how much you gambled?
 - *99% sensitivity, 91% specificity*



Johnson EE, Hamer R, Nora RM, et al: The lie/bet questionnaire for screening pathological gamblers. *Psychological Reports* 80:83-88, 1997.

Neurobiology of GD

- Gambling affects:
 - DA
 - NE
 - Cortisol
 - 5HT
- Neurobiological similarities with substance use disorders



Epidemiology

- **US Gambling Statistics:**
 - \$78.7 billion commercial gaming revenue in 2026
 - Does not include revenue from casinos on tribal land (\$43.9 billion in 2024)
 - \$18.09 billion in revenue from gambling taxes
 - 57% of US residents participated in some form of gambling in 2026
 - 30% at physical casino, 21% placed a sports bet
 - ~1% (range 0.5-3%) of the US adult population meets criteria for GD

www.americangaming.org

National Indian Gaming Commission FY2024 Gross Gaming Revenue Report;

Stefanovics E, Potenza M: Update on Gambling Disorder. Psych Clin of N Am 45(3): 483-502, 2022.

<https://www.ncpgambling.org/news/national-council-on-problem-gambling-survey-shows-drop-in-problem-gambling-risk-highlights-ongoing-challenges/>

Epidemiology

- High rate of co-occurrence with other psychiatric disorders
 - 96% of individuals with GD have one or more co-occurring psychiatric disorders
 - 64% have 3 or more
 - Substance use disorders, mood disorders, anxiety disorders, and impulse control disorders are most common
 - Co-occurring disorders may help guide treatment



Kessler RC, et al: DSM-IV pathological gambling in the National Comorbidity Survey Replication. Psych Med 38(9): 1351-1360, 2008.

What's Available in Your State?



- **Opportunities in US:**
 - Land-based casinos
 - Internet gambling
 - Nonregulated gambling
 - Sports betting
 - Prediction markets
- **More available and accessible now than ever before**

Sports Betting

Sports Betting: History

- Traditional: Bookmakers (“bookies”) make a “book” (ledger of bets) specifically to make a profit regardless of outcome
 - Adjusting the odds
 - Spread betting
- Sports contests
- Fantasy sports



Sports Betting: History

- Professional and Amateur Sports Protection Act (PASPA) passed in 1992 (supported by NFL and NBA at the time)
- In 2018, PASPA was overturned by the Supreme Court
- Sportsbooks currently legal in 39 states and online sports betting legal in 30 states
- LOOPHOLE! Prediction markets (e.g. Kalshi, Polymarket)



Sports Betting: Changes

- App-based betting
 - Live, in-game betting
 - Ability to bet continuously
- More sophisticated bookmaking
 - AI-powered predictions
 - Continuous odds calibration
 - Analysis of user behavior to tailor promotions
- Further abstraction of monetary investment
- Enmeshment with sports leagues/broadcasts themselves

Sports Betting: Epidemiology

- National Survey on Gambling Attitudes and Gambling Experiences (NGAGE 3.0) from Apr 2024
 - After rising from 20% in 2018 to 26% in 2021, sports betting participation leveled off at 23% of the population in 2024
 - The greatest predictors of risk for problematic gambling included:
 - participation in many different gambling activities
 - gambling weekly or more often
 - agreeing that gambling is a good way to make money
 - **participating in sports betting** (either traditional sports betting or fantasy sports)
 - **gambling online**
 - **being male and/or under the age of 35**
 - The number of sports bettors making **parlay bets** has almost doubled, from 17% of sports bettors in 2018, to 30% in 2024

Problem Sports Betting: Epidemiology

- Tend to be younger (<35) and more likely to be male
- More likely to be highly educated and tech-savvy
 - Perceive their gambling to be more determined by their own skills, knowledge, and analysis than by luck or chance
- More likely to be single
- 50% of men 18-49 have an account with at least one online sportsbook (SCRI poll 2026)



Auer, M., & Griffiths, M. D. (2017). Self-reported losses versus actual losses in online gambling: An empirical study. *Journal of Gambling Studies*, 33, 795–806.

Hing, N et al. (2016). Demographic, behavioural and normative risk factors for gambling problems amongst sports bettors. *Journal of Gambling Studies*, 32, 625–641.

Hing, N. et al. (2015). Maintaining and losing control during Internet gambling: A qualitative study of gamblers' experiences. *New Media and Society*, 17, 1075–1095.

Mestre-Bach G et al. Sports-betting-related gambling disorder: Clinical features and correlates of cognitive behavioral therapy outcomes. *Addict Behav.* 2022 Oct;133:107371.

Mercier, J., Sévigny, S., Jacques, C., Goulet, A., Cantinotti, M., & Giroux, I. (2018). Sports bettors: A systematic review. *Journal of Gambling Issues*, 38, 203–236.

Sports Betting and Alcohol

- Grubbs et al 2024 collected a census-matched sample of 4363 US adults with an oversample of adults who wager on sports
- 75% of daily (or almost daily) sports bettors engaged in binge drinking.
 - ♦ This is 4 TIMES more than gamblers who do not engage in sports betting.
- 66% of weekly sports bettors engaged in binge drinking.
 - ♦ This is 3 TIMES more than gamblers who do not engage in sports betting.
- 59% of monthly sports bettors engaged in binge drinking.
 - ♦ This is 2.5 TIMES more than gamblers who do not engage in sports betting.

Sports Betting Legalization Amplifies Emotional Cues & Intimate Partner Violence

40 Pages • Posted: 27 Sep 2024 • Last revised: 30 Oct 2024

Kyutaro Matsuzawa

San Diego State University

Emily Arnesen

University of Oregon - Department of Economics

Date Written: August 27, 2024

- Found that when sports gambling is legalized, there is a 10% increase in IPV with NFL home-team upset losses
- Effects are larger
 - In states where mobile betting is legalized
 - In locations where higher bets were placed
 - Around paydays
 - For teams who were on a winning streak

Gambling Cognitive Distortions

The Odds are Never in Your Favor

- “The house always wins”
- House edge is the ratio of the average loss to the initial bet, essentially the average gross profit the casino expects to make from each game
 - Keno – house edge 25-29%
 - Any craps – 11.11%
 - Ultimate Texas Hold ‘Em – 2.19%
 - Blackjack (liberal Vegas rules) – 0.28%
- The longer you play, the greater the odds are that the result of your play will match up with the house edge

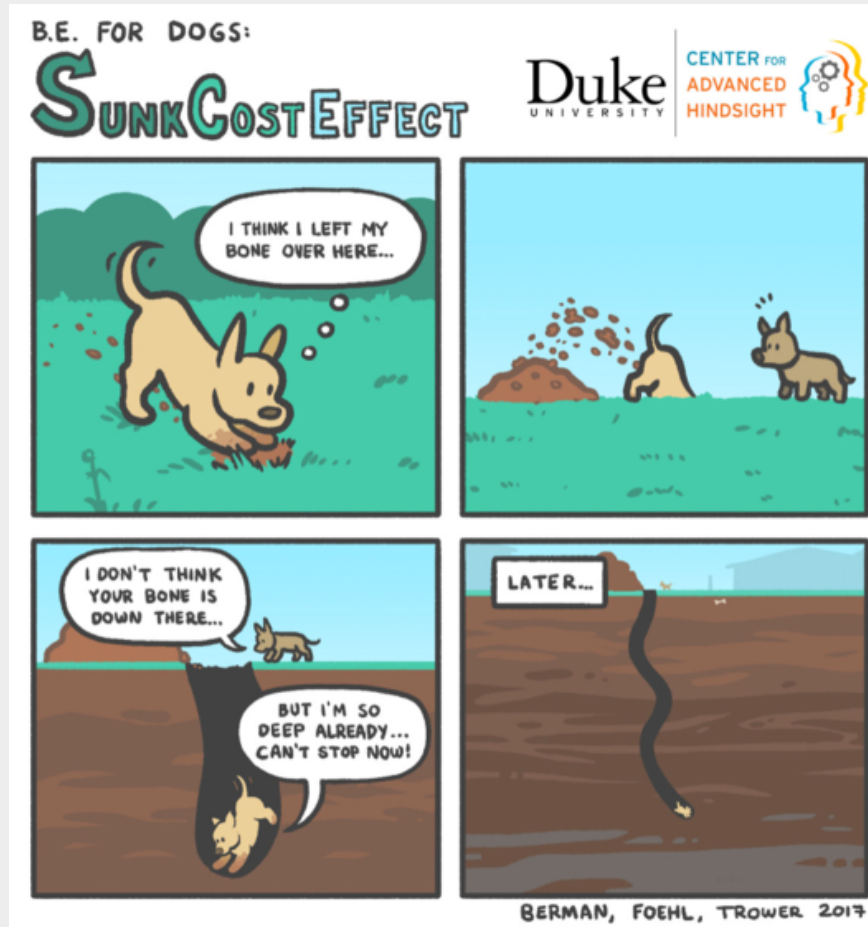


Interpretative Biases



- Attributing wins to skill, losses to flukes
- Wrongly believing that a series of losses increases the chance of subsequent win
- Near misses (*"I was only one number away!"*)

The “Sunk-Cost” Effect



Superstitious Beliefs

- Believing in:
 - Good luck objects (like animal parts)
 - Behaviors
 - Routines



Gaboury A, Ladouceur R: Erroneous perceptions and gambling. Journal of Social Behaviors and Personality 4:411-420, 1989.

Selective Memory



- Remembering wins while ignoring losses
- Totaling wins without correcting for amounts lost

Treatment Options

Treatment

- Evidence-based therapies
 - CBT, Motivational Interviewing, Imaginal Desensitization all appear efficacious
- NO FDA-approved medication for GD
 - opioid antagonists, SSRIs, and lithium show some positive effect
- Mutual-help groups (Gamblers Anonymous)



Treatment: Opioid Antagonists

- Naltrexone and Nalmefene
- GD conceptualized as an impulsive disorder
- Block opioid receptors, decrease dopamine function, and reduce “reward cravings”



Treatment: Opioid Antagonists

- Reductions in gambling outcomes and urges to gamble with daily naltrexone
- Results for “as-needed” use of naltrexone more mixed
- Naltrexone 50 mg PO daily seems to be as effective as higher doses though some studies dose up to 250 mg PO daily
- Appears to work best in patients with either a personal or family history of alcohol use disorder

Grant JE, Kim SW, Hollander E, et al: Predicting treatment response to opiate antagonists and placebo in the treatment of pathological gambling. Psychopharmacol 200:521-527, 2008.

Grant JE, Potenza MN: Pathological Gambling: A Clinical Guide to Treatment. Washington, DC, American Psychiatric Publishing, 2004.

Ward S, Smith N, Bowden-Jones H: The use of naltrexone in pathological and problem gambling: A UK case series. J of Behav Addictions 7(3): 827-833, 2018

Treatment: Lithium

- Mood stabilizer
- GD conceptualized as an impulsive disorder
- Shown to decrease both urges to gamble and gambling behavior in people with co-morbid bipolar-spectrum illness
- May also have some efficacy for those with GD but no bipolar illness



Treatment: SSRIs



- Frequently investigated for compulsive disorders (e.g. OCD, hoarding, trichotillomania)
- Gambling conceptualized as a compulsive disorder
- Block serotonin reuptake, increase serotonin function, used for treatment of mood and anxiety disorders

Treatment: SSRIs

- Fluvoxamine, paroxetine, escitalopram most studied
- Unclear if they help decrease urges but may reduce “self-medication” behavior
- May require higher-than-usual doses
- Work best with co-occurring depression or anxiety

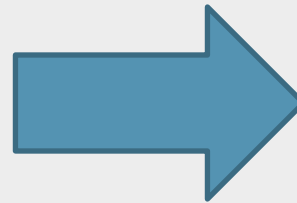


Internet Gaming Disorder

The Evolution of IGD

DSM-IV-TR

Not Found



DSM-5

Conditions for
Further Study

Proposed Criteria

- Seven DSM-5 Addiction Criteria, plus
 - Has deceived family, therapists or others about the amount of gaming
 - Uses games to escape/relieve negative mood
 - *(Excludes Internet gambling, recreational/social Internet use, sexual websites)*

ICD-11 Criteria

- A pattern of persistent or recurrent gaming behavior ('digital gaming' or 'video-gaming'), which may be online (i.e., over the internet) or offline, manifested by:
 - 1) impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context)
 - 2) increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities
 - 3) continuation or escalation of gaming despite the occurrence of negative consequences.
 - The behavior pattern is of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning.
- Modifiers are “predominantly online” and “predominantly offline.”
- “Hazardous gaming” also exists as a diagnosis

Who's Playing?

- ESA (Entertainment Software Association) 2024 survey
 - 205.1 million Americans play video games
 - 64% of the U.S. population reports playing 1+ hours a week
 - 55% of gamers play with others on-line or in person at least weekly



2024 Essential Facts about the Computer and Video Game Industry. Entertainment Software Association. <https://www.theesa.com/>. Published May 2026. Accessed June 2026.

The Average Player

- Is white (75%)
- 52% identify as male, 47% identify as female (1% identify as “non-binary/prefer not to say”)
- Is age 36
 - 77% of players are 18 years or older
 - 28% of those who play video games are over the age of 50.

Clinical Presentation of IGD

- Has more to do with life impact than amount of time played (though this is controversial)
- Often, but not always, occurs in patients with other co-morbidities (especially SUDs and mood disorders)
- Prevalence: Global prevalence appears to be ~2-3% and males 2.5 times as likely to be diagnosed
 - More common in Asian countries esp. China, Taiwan, South Korea



Problematic Play

- Risk factors include:
 - Personality traits (neuroticism, aggression and hostility, and sensation seeking)
 - Motivations for play (escapism, control, avoiding dissatisfaction)
 - Structural game characteristics (online games, ability to customize virtual game persona, game reinforcement structure).
 - MMORPGs a particular area of interest



Imaging studies

- Executive control networks are altered
 - Internet gaming addicts showed lower resting-state functional connectivity between VTA and mOFC (Han 2018)
 - Impaired task performance in Stroop test (Dong 2015)
- Decreased gray matter volume in brain regions involved in self-control and motivation in patients with gaming disorder (Yao 2017)

Imaging studies

- Several studies show increased activity in the ACC and mOFC in response to gaming cues in subjects with gaming disorder (Han 2010, Ko 2009)

Bottom Line

- Imaging studies suggest that the brains of people with problematic play are similar to those of people with substance use disorders
 - Gaming and gaming-related cues trigger activation of reward pathway
 - Gaming cues acquire increased salience over other activities
- Clinically this may manifest in other impulse control problems
- Problematic play is frequently co-morbid with other psychiatric disorders including mood disorders and substance use disorders

Treatment

- Therapy modalities consist mainly of CBT, behavior therapy, and 12-Step approaches
- Psychopharmacologic management is off-label and has poor to middling evidence base for efficacy
 - Potential agents mainly selected from the same medications that are researched for SUDs
- Treatment centers initially arose in Asia and then Europe but now exist in North America as well

In Summary



- Behavioral addictions fall within an impulsivity-compulsivity spectrum of illness.
- DSM-5 only recognizes one disorder officially though one other is included as a condition for further study.
- Psychosocial treatments work.
- Medications have fallen short so far.



Get in Touch



301.656.3920



education@asam.org



www.asam.org