

# Behavioral Addictions

**Faye Chao, MD**

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

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## Financial Disclosures

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Faye Chao, MD

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# Learning Objectives

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



# Presentation Outline

- ◆ History
- ◆ Impulsivity/Compulsivity Spectrum
- ◆ Gambling Disorder
- ◆ Internet Gaming Disorder
- ◆ Hypersexual Disorder
- ◆ Other Behavioral Addictions

# History

- 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.

# Essential Features

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

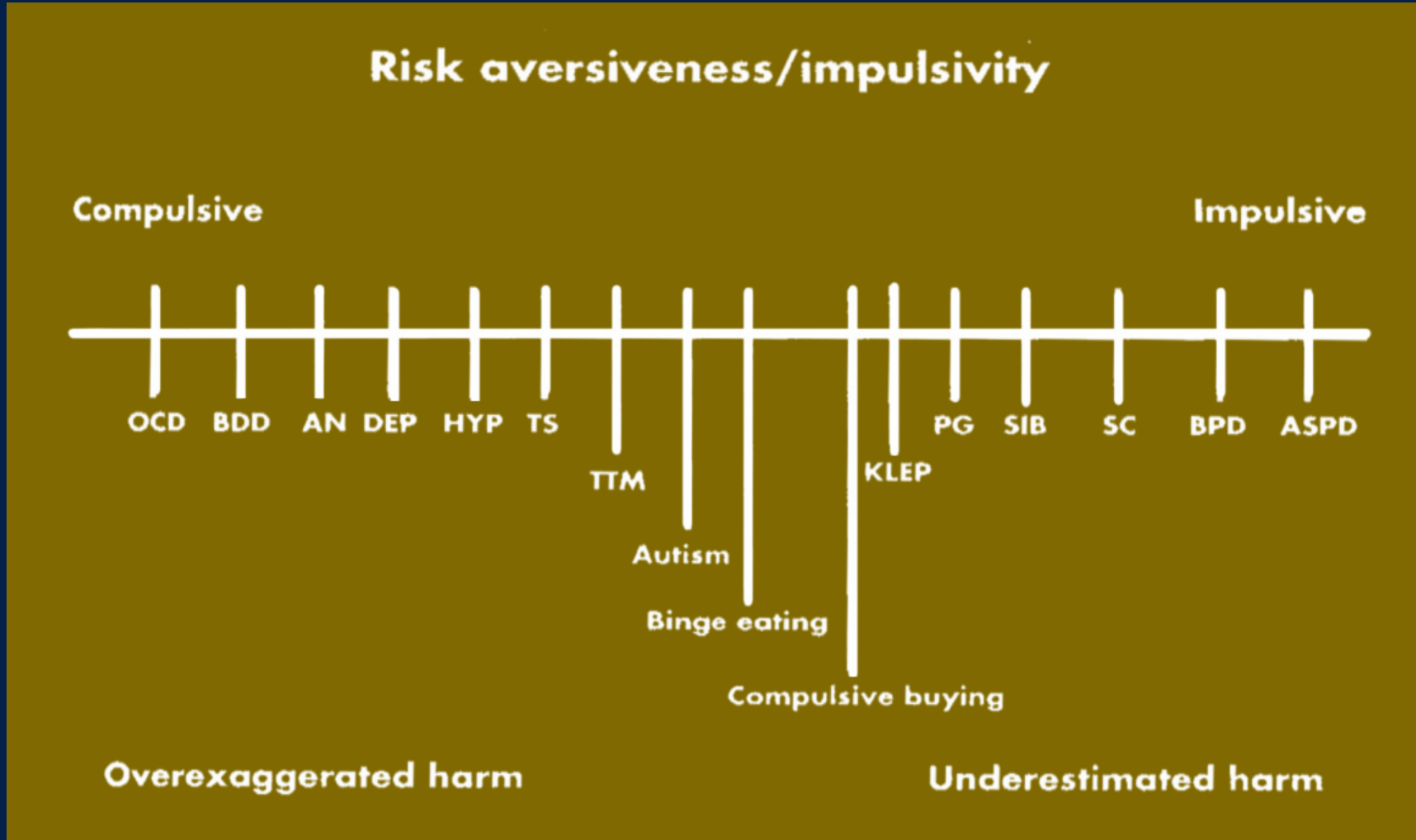
. . . to perform an act that is harmful to oneself or others.

# 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.



# Dimensional Approach



# Compulsive End

- OCD
- Body Dysmorphic Disorder
- Anorexia Nervosa
- Depersonalization Disorder
- Hypochondriasis
- Tourette's Syndrome
- Trichotillomania
- Autism

- Binge Eating
- Compulsive Buying
- Kleptomania
- Pathological Gambling
- Self-Injurious Behaviors
- Sexual Compulsions
- Borderline Personality Disorder
- Antisocial Personality Disorder

# Impulsive End

# Gender Differences

## Women

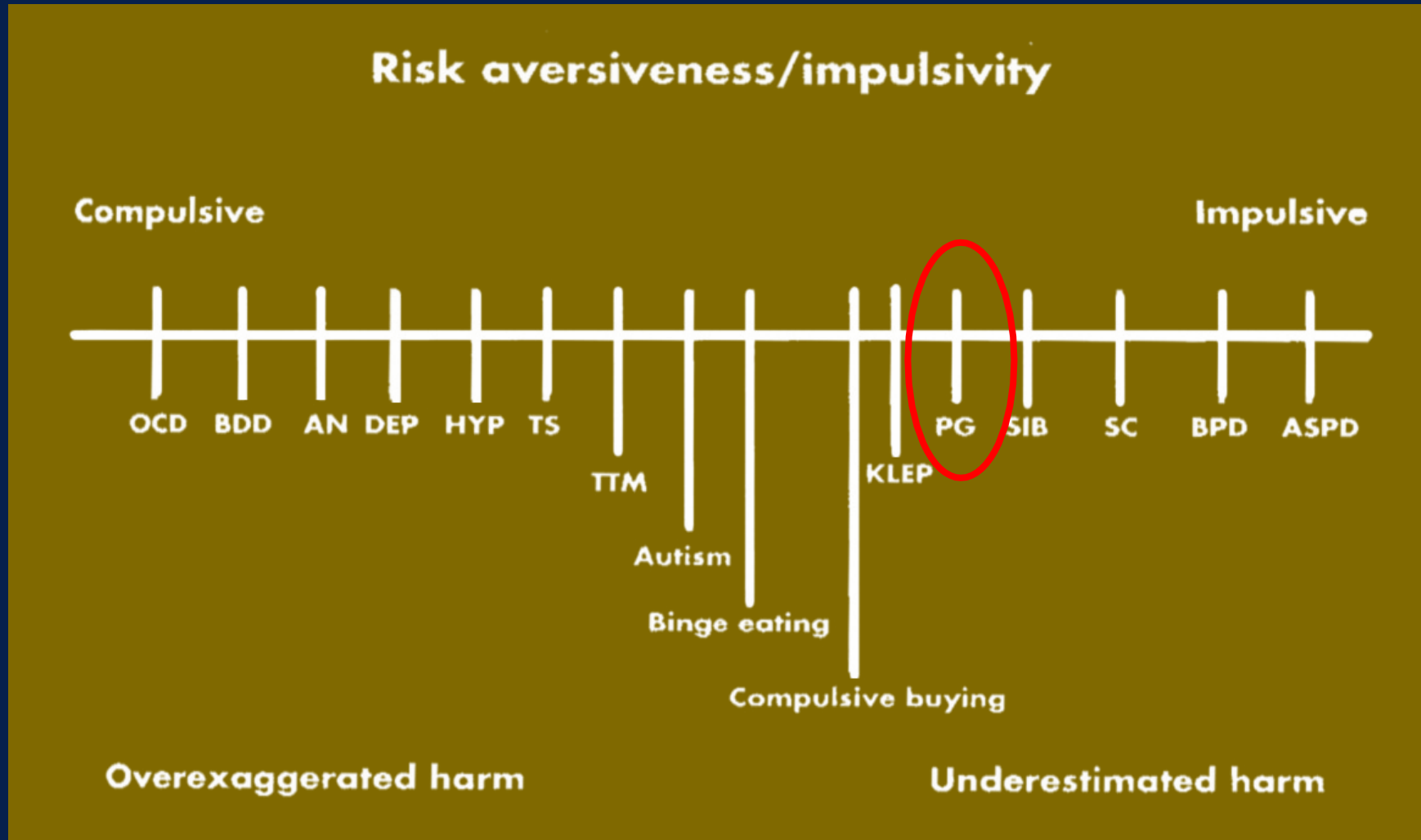
- Anorexia
- Binge Eating
- Kleptomania
- Compulsive Buying
- Trichotillomania

## Men

- Body Dysmorphic
- Sexual Compulsion
- Pyromania
- Gambling
- Problematic gaming

# Gambling Disorder

# Gambling Disorder



# Gambling Disorder

DSM-IV-TR

DSM-5

Pathological Gambling

Gambling Disorder

as



as

Impulse-Control Disorder

Substance-Related and  
Addictive Disorder

# Substance-Related and Addictive Disorder



Alcohol

Caffeine

Cannabis

Hallucinogen

Inhalant

Opioid

Sedative

Stimulant

Tobacco

Gambling  
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)

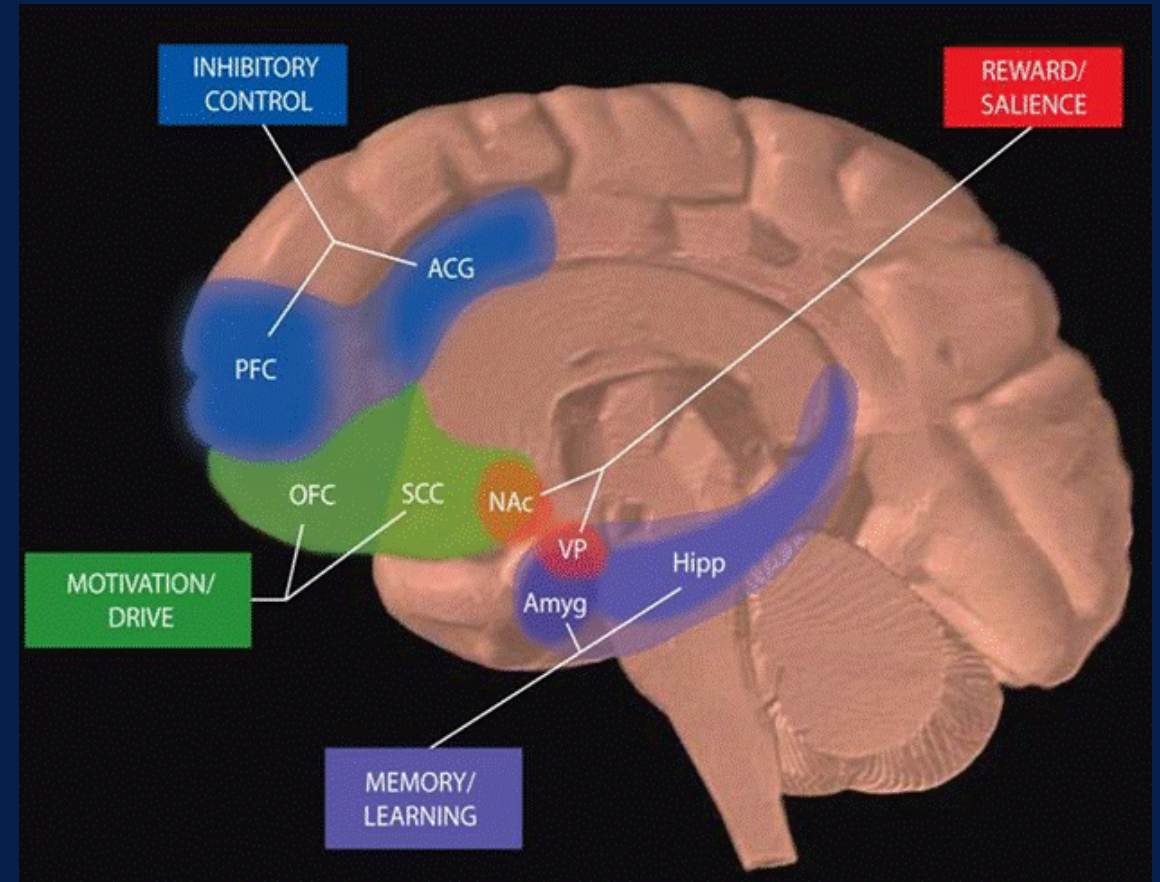
## Phases

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



# Neurobiology of GD

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



# Epidemiology

## ◆ US Gambling Statistics:

- ◆ \$73 billion/year casino gaming revenue
- ◆ 82% of US residents gamble
- ◆ 1% - 2% meet criteria for PG

## ◆ Problematic Gamblers:

- ◆ \$40,000 average individual debt
- ◆ 25 hours/week average time spent



# The decline of casino slots and the rise of online

**theleader.info**

By @leadernewspaper - 10/08/2019



*The decline of casino slots and the rise of online*

For many years the mental image conjured up by the word 'casino' was made up of one of two things. It was either gaming tables surrounded by people rolling dice, holding playing cards or placing bets on a roulette wheel, or it was row upon row of flashing slot machines.

# State forecasts dip, stagnation of casino tax aid

Projections show state will no longer be able to count on more money from slots, table game for schools

By Lauren Stanforth Published 12:32 pm EDT, Wednesday, March 13, 2019



# What's Available in Your State?



- ◆ Opportunities in US:
  - ◆ Land-based casinos
  - ◆ Internet gambling
  - ◆ Nonregulated gambling
  - ◆ Online fantasy sports
- ◆ More available and accessible now than ever before

# Screening Tools

- The Lie/Bet Test
  - 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*



# 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

B.E. FOR DOGS:

# SUNK COST EFFECT

Duke  
UNIVERSITY

CENTER FOR  
ADVANCED  
HINDSIGHT



BERMAN, FOEHL, TROWER 2017

# Superstitious Beliefs

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



# Selective Memory



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

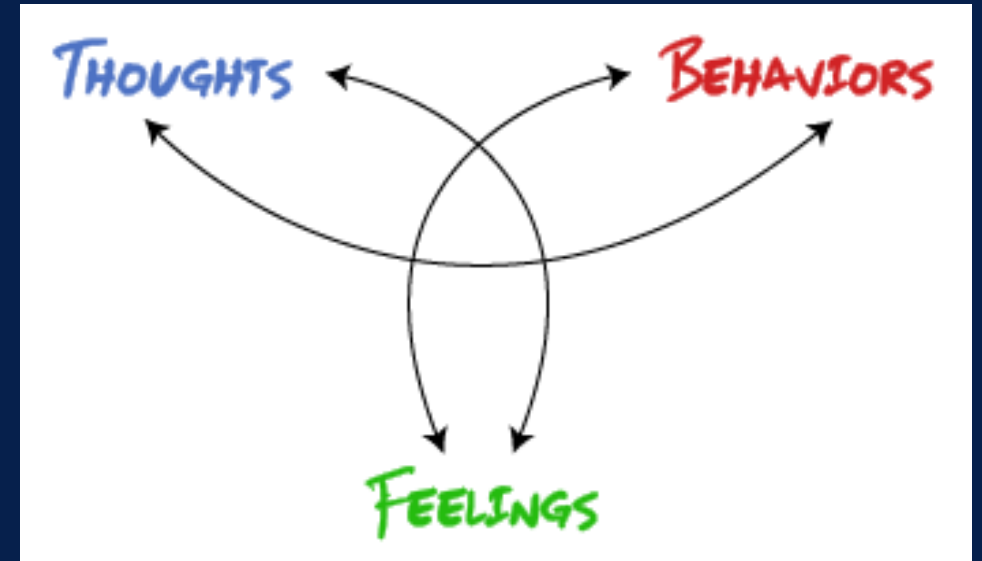
# Telescoping

- Temporal:
  - Expecting that naturally occurring—that is, probabilistically expected—wins will happen sooner rather than later.



# Treatment

- ◆ Behavior therapy, cognitive behavioral therapy, family therapy
- ◆ Opioid antagonists, SSRIs
- ◆ Mutual-help groups (Gamblers Anonymous)



# Treatment: GD as an Impulsive Disorder

- Opioid Antagonists
  - Naltrexone and Nalmefene
  - Block opioid receptors, decrease dopamine function, and reduce “reward cravings”
  - Best with family history of alcoholism



# Treatment: GD as a Compulsive Disorder

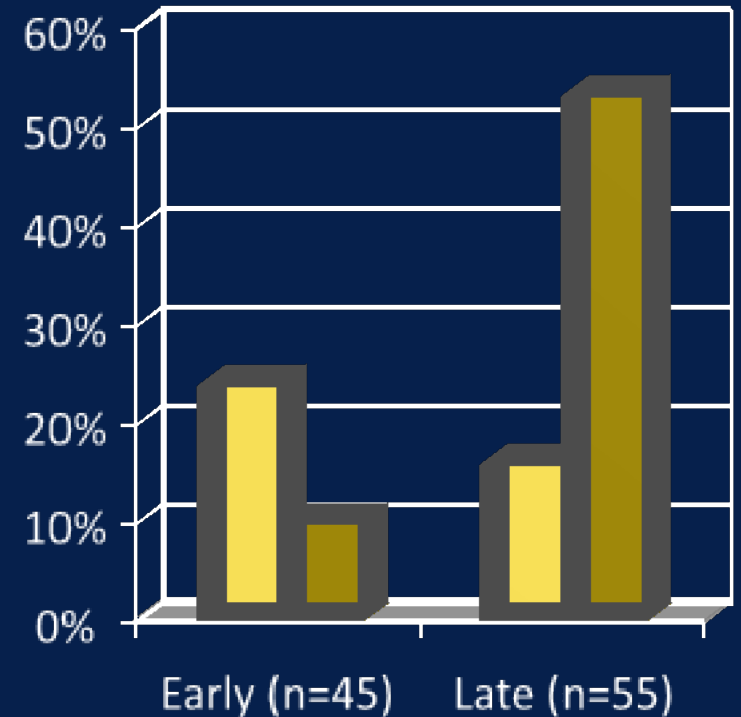


- Selective Serotonin Reuptake Inhibitors
  - Fluvoxamine, Paroxetine, Escitalopram
  - Block serotonin reuptake, increase serotonin function, and reduce “self-medication”
  - Best with co-occurring depression or anxiety



# Sertraline for Alcohol Use Disorder

- Abstinence rates during a 14-week treatment trial with sertraline 200mg daily
- Helped late-onset drinkers (type 1)
- Worsened early-onset drinkers (type 2)





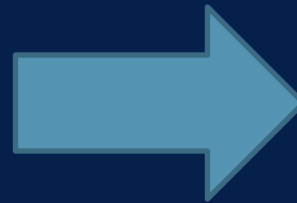
# Internet Gaming Disorder

# The Evolution of IGD

DSM-IV-TR

DSM-5

Not Found



Conditions for  
Further Study

# DSM-5 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

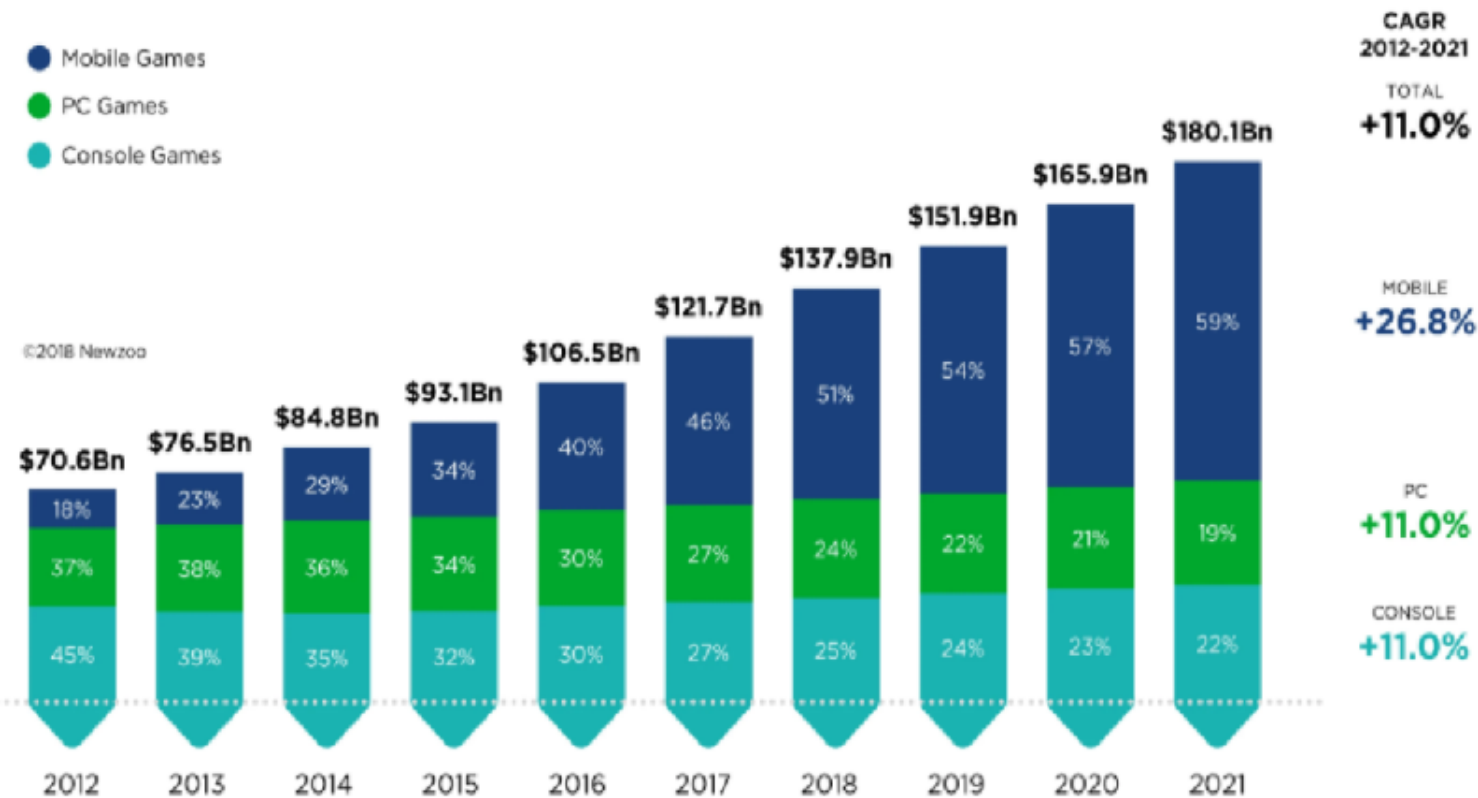
- ◆ A pattern of persistent or recurrent gaming behavior ('digital gaming' or 'video-gaming'), which may be online (i.e., over the internet) or offline, manifested by:
  - ◆ 1) impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context)
  - ◆ 2) increasing priority 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.”



# 2012-2021 GLOBAL GAMES MARKET

REVENUES PER SEGMENT 2012-2021 WITH COMPOUND ANNUAL GROWTH RATES

- Mobile Games
- PC Games
- Console Games



Source: ©Newzoo | April 2018 Quarterly Update | Global Games Market Report

[newzoo.com/globalgamesreport](http://newzoo.com/globalgamesreport)

# Who's Playing?

- ◆ ESA (Entertainment Software Association) 2021 survey
  - ◆ 226.6 million Americans play video games
  - ◆ 77% of gamers play with others online or in person at least weekly (up from 65% in 2020)
  - ◆ 77% play for 3+ hours a week



# The Average Player

- ◆ Is white (73%)
- ◆ May be of either gender
  - ◆ Gender breakdown: 55% identify as male, 45% identify as female
- ◆ Is age 31
  - ◆ 80% of players are over 18 years old
  - ◆ In 2021, 28% of those who play video games are over the age of 45.



# 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. However...



# Context Matters

- South Korea is the most wired country in the world
  - Greatest number of users
  - First country to achieve over 50% broadband penetration per capita
  - Has the fastest, cheapest broadband in the world
  - Tournament gaming is a viable profession
- Unsurprisingly, one study found that up to 50% of Korean teenagers report problematic internet gaming use (Hur 2006)
- Internet gaming addiction is considered a significant public health concern.



# 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

- Internet gaming addicts showed lower resting state functional connectivity between VTA and mOFC (Han 2018)
- Several studies show increased activity in the ACC and mOFC in response to gaming cues in subjects with gaming disorder (Han 2010, Ko 2009)
- Altered gray matter volume in patients with gaming disorder

Han, DH, et al. Bupropion sustained release treatment decreases craving for video games and cue-induced brain activity in patients with Internet video game addiction. *Exp Clin Psychopharmacol.* 2010 Aug;18(4):297-304.

Han, DH, et al. Changes in cue-induced, prefrontal cortex activity with video-game play. *Cyberpsychol Behav Soc Netw.* 2010 Dec;13(6):655-61

Ko, CH, et. al. Brain activities associated with gaming urge of online gaming addiction. *J Psychiatr Res.* 2009 Apr;43(7):739-47



# 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

# Treatment Centers in North America

- ◆ ReSTART – a residential treatment center near Seattle
- ◆ Foothills at Red Oak Recovery in NC
- ◆ Last Door in Vancouver
- ◆ CGAA – Computer Gaming Addicts Anonymous

# Hypersexual Disorder

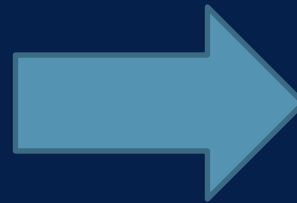


# The Non-Evolution of HD

DSM-IV-TR

DSM-5

Not Found



Not Found



# Proposed Criteria

- Recurrent sexual fantasies/urges/behaviors with three or more:
  - Time spent interferes with other **non-sexual obligations**
  - Repetitive engaging in response to **dysphoric mood states**
  - Repetitive engaging in response to **stressful life events**
  - Repetitive but unsuccessful efforts to **control behavior**
  - Repetitive engaging while **disregarding risk for physical/emotional harm to self or others**



# Proposed Criteria

- Specify if:
  - Masturbation, pornography, sexual behavior with consenting adults, cybersex, telephone sex, strip clubs

# Is it Real?

- Controversy about the criteria, but there is agreement that there is out-of-control, repetitive, and driven sexual behavior (typically with strangers) which leads to distress and dysfunction.



# Is it Real?

- Sexual encounter = pleasurable
- Sexually addictive behavior = serves to manage and control negative affect
  - Often poor insight



# Rapid Fire: Other Behavioral Addictions

# Internet Addiction

- Think co-occurring psychiatric disorder
- May use Young's Internet Addiction test

## Internet Addiction Test (IAT) by Dr. Kimberly Young.

Internet Addiction Test (IAT) is a reliable and valid measure of addictive use of Internet, developed by Dr. Kimberly Young. It consists of 20 items that measures mild, moderate and severe level of Internet Addiction.

To begin, answer the following questions by using this scale:-

0	Does not apply
1	Rarely
2	Occasionally
3	Frequently
4	Often
5	Always

	Question	Scale					
		1	2	3	4	5	0
1	How often do you find that you stay on-line longer than you intended?	1	2	3	4	5	0
2	How often do you neglect household chores to spend more time on-line?	1	2	3	4	5	0
3	How often do you prefer the excitement of the Internet to intimacy with your partner?	1	2	3	4	5	0
4	How often do you form new relationships with fellow on-line users?	1	2	3	4	5	0
5	How often do others in your life complain to you about the amount of time you spend on-line?	1	2	3	4	5	0
6	How often do your grades or school work suffers because of the amount of time you spend on-line?	1	2	3	4	5	0

# Food Addiction

## Yale Food Addiction Scale

Gearhardt, Corbin, Brownell, 2009  
Contact: ashley.gearhardt@yale.edu

This survey asks about your eating habits in the past year. People sometimes have difficulty controlling their intake of certain foods such as:

- Sweets like ice cream, chocolate, doughnuts, cookies, cake, candy, ice cream
- Starches like white bread, rolls, pasta, and rice
- Salty snacks like chips, pretzels, and crackers
- Fatty foods like steak, bacon, hamburgers, cheeseburgers, pizza, and French fries
- Sugary drinks like soda pop

When the following questions ask about "CERTAIN FOODS" please think of ANY food similar to those listed in the food group or ANY OTHER foods you have had a problem with in the past year

IN THE PAST 12 MONTHS:	Never	Once a month	2-4 times a month	2-3 times a week	4 or more times or daily
1. I find that when I start eating certain foods, I end up eating much more than planned	0	1	2	3	4
2. I find myself continuing to consume certain foods even though I am no longer hungry	0	1	2	3	4
3. I eat to the point where I feel physically ill	0	1	2	3	4
4. Not eating certain types of food or cutting down on certain types of food is something I worry about	0	1	2	3	4
5. I spend a lot of time feeling sluggish or fatigued from overeating	0	1	2	3	4
6. I find myself constantly eating certain foods throughout the day	0	1	2	3	4
7. I find that when certain foods are not available, I will go out of my way to obtain them. For example, I will drive to the store to purchase certain foods even though I have other options available to me at home.	0	1	2	3	4
8. There have been times when I consumed certain foods so often or in such large quantities that I started to eat food instead of working, spending time with my family or friends, or engaging in other important activities or recreational activities I enjoy.	0	1	2	3	4
9. There have been times when I consumed certain foods so often or in such large quantities that I spent time dealing with negative feelings from overeating instead of working, spending time with my family or friends, or engaging in other important activities or recreational activities I enjoy.	0	1	2	3	4
10. There have been times when I avoided professional or social situations where certain foods were available, because I was afraid I would overeat.	0	1	2	3	4
11. There have been times when I avoided professional or social situations because I was not able to consume certain foods there.	0	1	2	3	4

- Distinct from binge-eating disorder
- Use the Yale Food Addiction Scale



# Exercise Addiction

- Apply modified DSM-5 criteria for SUD to diagnose



# Love Addiction



- Look for conflicted attachments or traumatic experiences in childhood

# Shopping Addiction (Compulsive Buying Disorder)

- More common among women in developed countries
- 2 - 8% prevalence in the US



# Tanning Addiction



- Tanning releases endorphins
- Naltrexone was shown to induce withdrawal in a small sample of frequent tanners

# Kleptomania

- Possibly an addictive disorder?
- High suicide attempt rate – up to 24%





# 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.

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