



What are young people doing online?

The Role of Technology on Process Addiction in Teens & Young Adults



Michael Silva MD, Ramita Goel MD, Stephanie Black DO  
UW Addiction Psychiatry Fellows

# Objectives



- List diagnostic approaches to identify problem use of technology amongst teens and young adults
- Describe epidemiology of problematic technology amongst teens and young adults
- Identify at least 2 treatment approaches to address problematic technology use amongst teens and young adults.



# TikTok settles just before social media addiction trial to begin

5 days ago

Share Save

Lily Jamali

North America Technology correspondent, San Francisco



## Teenagers who report addictive use of screens at greater risk of suicidal behaviour, study shows

Experts find link between compulsive use of social media, phones and video games and mental health problems



"oh my gosh yall IG is a drug," the user experience specialist allegedly wrote to a colleague, referring to the social media platform Instagram. "We're basically pushers... We are causing Reward Deficit Disorder bc people are binging on IG so much they can't feel reward anymore."



# Process Addiction/ Behavioral Addiction



## **Beneficial Use**

Use that has positive health effects

## **Casual/Low-Risk Use**

Use that has negligible health effects

## **Harmful/High-Risk Use**

Use that begins to have negative health effects

## **Use Disorder/Addiction**

High-risk use that becomes habitual and compulsive despite negative effects

Similar clinical, neurobiological, and genetic patterns as substance use disorders.

# Process Addiction/ Behavioral Addiction

## Gambling Disorder



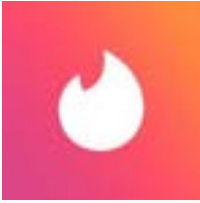
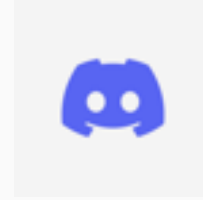
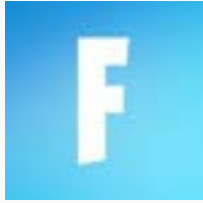
A. Persistent and recurrent problematic gambling behavior leading to **clinically significant impairment or distress**, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:

- Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
- Is restless or irritable when attempting to cut down or stop gambling.
- Has made repeated unsuccessful efforts to control, cut back, or stop gambling.
- Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).
- Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).
- After losing money gambling, often returns another day to get even “chasing” one’s losses).
- Lies to conceal the extent of involvement with gambling.
- Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.
- Relies on others to provide money to relieve desperate financial situations caused by gambling.

B. The gambling behavior is not better explained by a manic episode.

**Mild: 4–5 criteria met.** Moderate: 6–7 criteria met. Severe: 8–9 criteria met

# Problematic Technology/Internet/Media Use



Gaming



Gambling



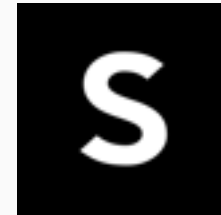
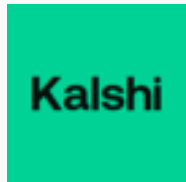
Social Media



Online Shopping



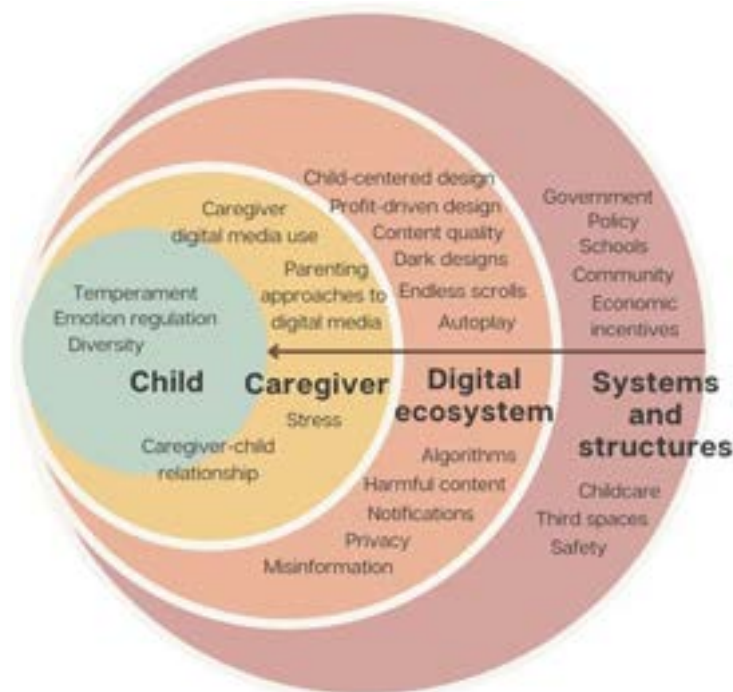
Cybersex/  
pornography





# Differentiating between normal use and problematic use

Many youth are spending hours each day online, but it's how and why they are using the internet that determines whether their use is problematic.



## Consider:

- Quantity
- Quality
- Context
- Developmental needs/function



# Clinical Interview & Functional Assessment

Technology use may be a symptom, a coping strategy, or a primary disorder.



How do you feel about your technology use?

Are there any benefits to your technology use?

How do you feel right before and after you use your phone?

When does it help vs when does it cause problems?

Has anyone suggested you cut down on your technology use?

What happens when you try to cut back or don't have access?

What emotions come up when you're online?

What else is going on in your life when use increases?

What are you missing out on because of your technology use?

## PROBLEMATIC AND RISKY INTERNET USE SCREENING SCALE (PRIUSS)

Please answer the questions below based on how you have felt and conducted yourself regarding your Internet use over the **past 6 months**. Please do your best to interpret these questions as they apply to your own experiences and feelings.

When considering your Internet use time, think about **any time you spend online**, whether you are using a computer or a mobile device. Do not include time you spend texting unless you are **using text messages to interact with an online application** such as Facebook or Twitter.

Place an # in the box which best describes your answer.

How often ...

	Never	Rarely	Sometimes	Often	Very Often
1. do you choose to socialize online instead of in-person?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2. do you have problems with face to face communication due to your internet use?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3. do you experience increased social anxiety due to your internet use?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4. do you fail to create real-life relationships because of the internet?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5. do you skip out on social events to spend time online?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6. do your offline relationships suffer due to your internet use?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7. do you feel irritated when you're not able to use the internet?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
8. do you feel angry because you are away from the internet?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
9. do you feel anxious because you are away from the internet?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
10. do you feel vulnerable when the internet isn't available?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
11. do you experience feelings of withdrawal from not using the internet?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12. do you put internet use in front of important, everyday activities?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13. do you avoid other activities in order to stay online?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14. do you neglect your responsibilities because of the internet?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15. do you lose motivation to do other things that need to get done because of the internet?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
16. do you lose sleep due to nighttime internet use?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
17. does time on the internet negatively affect your school performance?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
18. do you feel you use the internet excessively?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Add columns

Total score



# Screening Tools

Tools support but do not replace clinical judgment.

- PRIUSS - Problematic and Risky Internet Use Screening Scale
- Validated in adolescents and young adults
- Screening studies have suggested that 11% of adolescents may be at risk for PIU with a cutoff score of 25

ACSID-11 (Assessment of Criteria for Specific Internet-use Disorders) provides a comprehensive ICD-11 aligned assessment of the 5 process addictions commonly found with problematic internet use

55 questions

# The Epidemiology of Problematic Technology Use

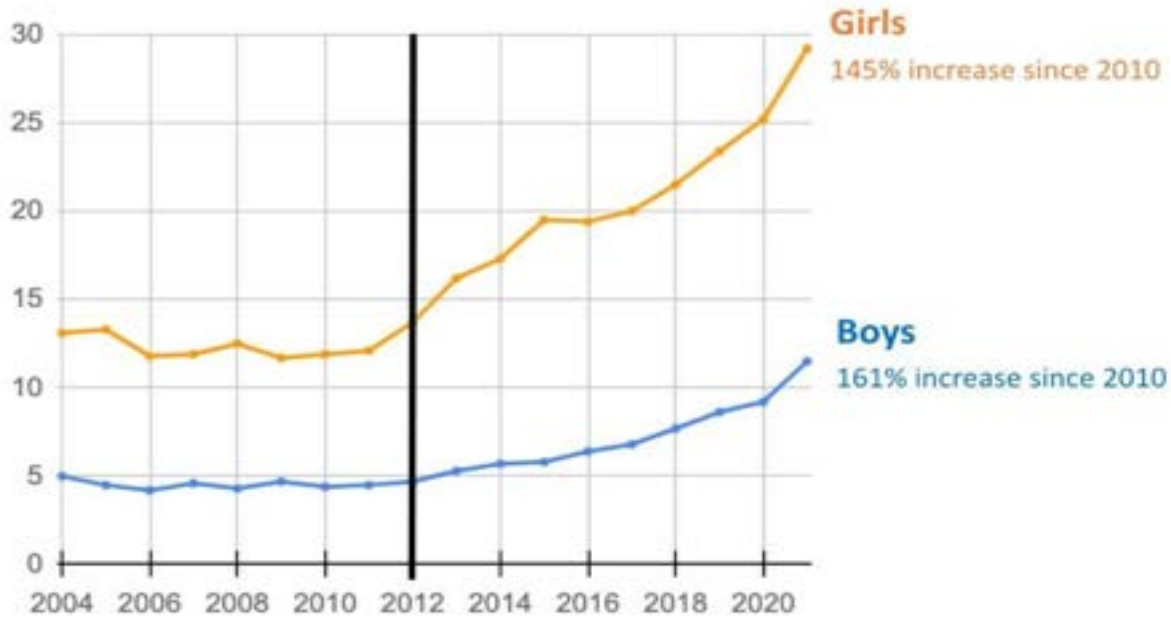


*Understanding Prevalence, Distribution, and Risk Factors in  
Youth*

# The Great Rewiring of the Adolescent Brain

*The 2012 Inflection Point in Adolescent Mental Health*

% US Teens with Major Depression



#Selfie Era( iPhone 4)

#4G launch →  
continuous scrolling

#Smartphone >50%  
adoption

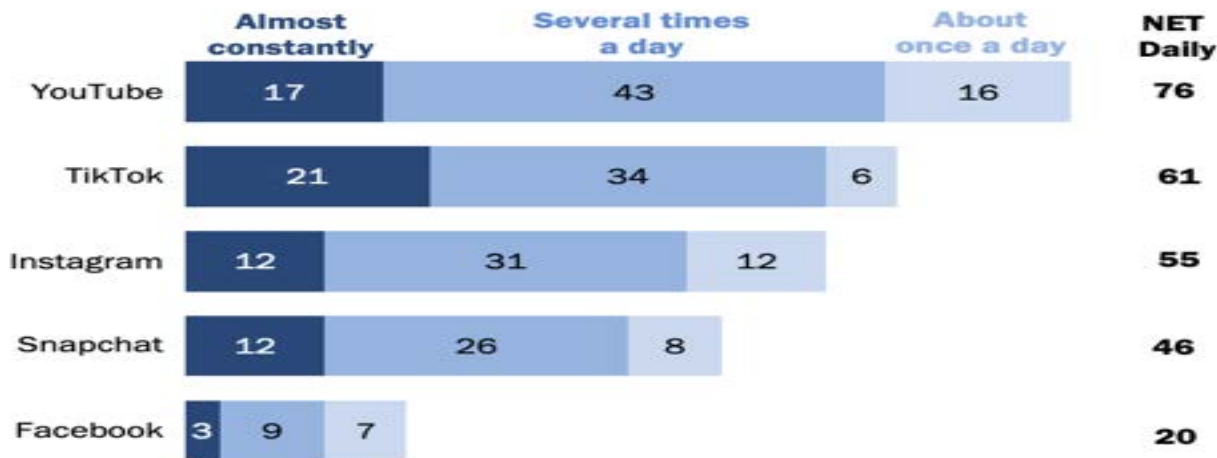
#Mobile always-on  
internet

#Social media expansion

# Current Trends in Teen Digital Engagement

## Most teens visit YouTube and TikTok daily, including about 1 in 5 who say they do almost constantly

% of U.S. teens ages 13 to 17 who say they visit or use the following apps or sites ...



Note: Figures may not add up to NET values due to rounding. Those who did not give an answer or gave other responses are not shown.

Source: Survey of U.S. teens conducted Sept. 25-Oct. 9, 2025.  
"Teens, Social Media and AI Chatbots 2025"

PEW RESEARCH CENTER

# 46% teens online  
"almost constantly"

# 41% Gen Z >8h/day  
digital use

#48% believe social  
media harms peers

#45% feel they spend  
"too much time"

# Teens Emotional Responses to Social Media

## Most teens say social media keep them connected to friends, but some get overwhelmed by the drama

*% of U.S. teens ages 13 to 17 who say that, in general, what they see on social media makes them feel a lot/a little ...*

### POSITIVE IMPACTS



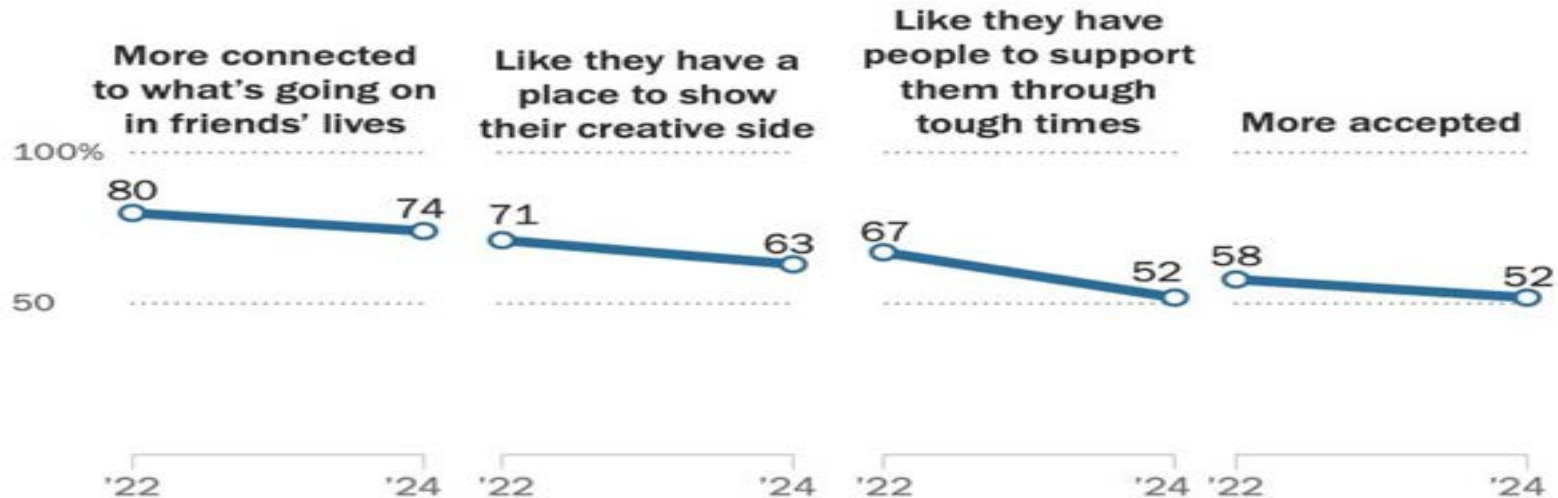
### NEGATIVE IMPACTS



# Diminishing Positive Social Media Impact

## Since 2022, drop in teens saying social media make them feel supported; but about half still say this

*% of U.S. teens ages 13 to 17 who say that, in general, what they see on social media makes them feel a lot/a little ...*



Note: Those who did not give an answer or gave other responses are not shown.

Source: Survey conducted Sept. 18-Oct. 10, 2024.

"Teens, Social Media and Mental Health"

# The 24/7 Engagement Loop



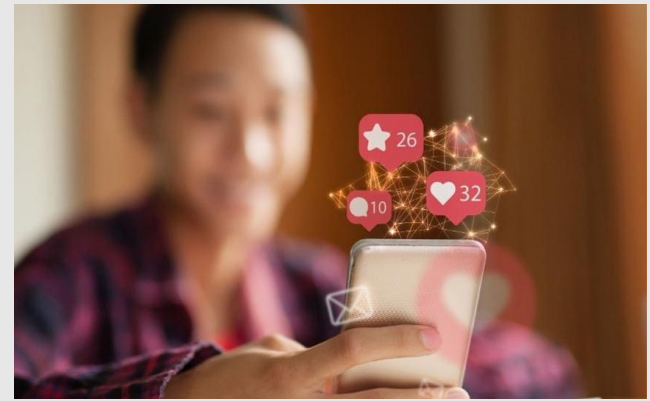
#Short-Form Domination( 15 sec)

#Hyper-Personalized Feeds

#The Infinite Scroll

#The “Streak” Dependency

#Likes, Shares & Views Validation Loop

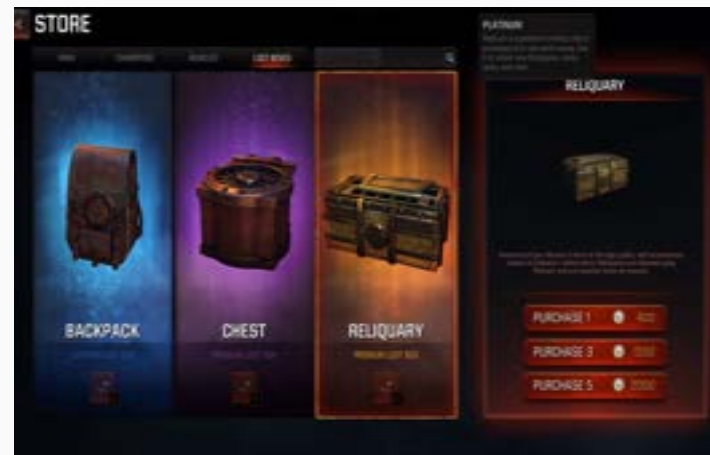


# “The Gamblification of Gaming”



- 64% gambling is gaming-related.
- **Motivation:** Fun/excitement (38%), winning money (28%), and integration within games (28%)
- 27% report stress or parent conflict.
- **Gateway risk**

Loot Boxes



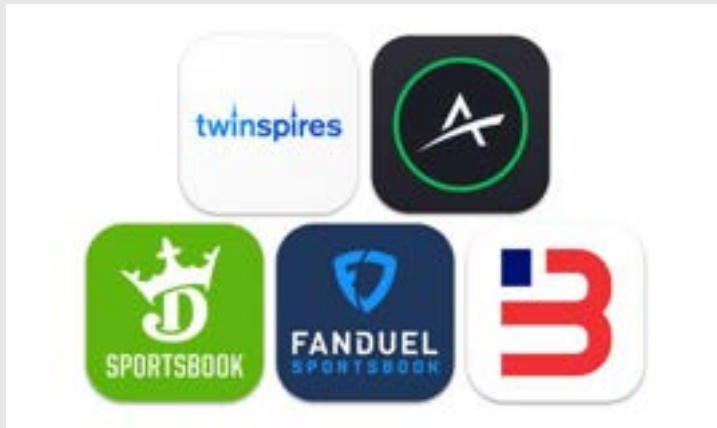
# The Rise of Sports Betting Among Youth

**#Post-2018 legalization** → normalization & advertising

**#Season-long contests (23%), fantasy sports/betting (9%), and in-game betting (6%)**

**#Mobile platforms** enable frictionless 24/7 sports gambling.

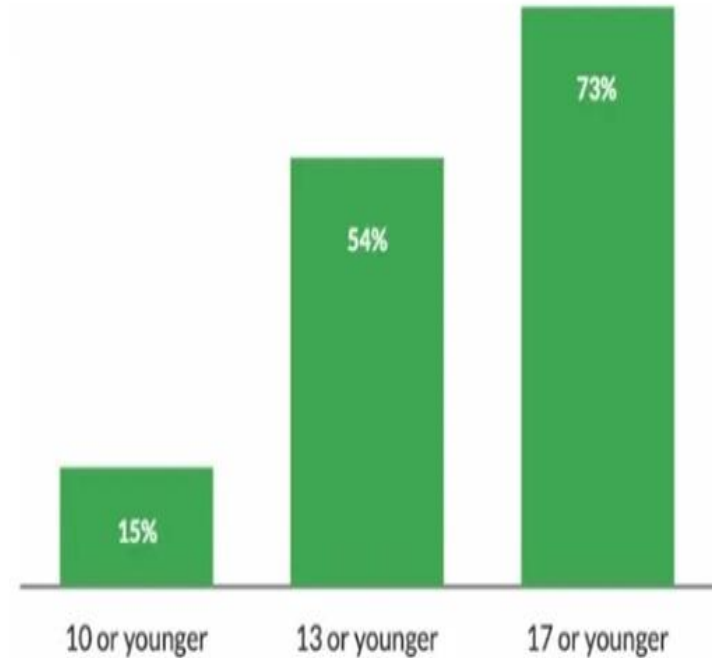
**#Influencers** promotion normalizes sports betting behavior.



# The Silent Epidemic: Cybersex, Sexting & Pornography

- 54%** first pornography exposure  $\leq 13$  years
- Sexting platforms:** Snapchat, Instagram
- 100+** AI chatbot apps available by 2025
- 45%** report pornography as sexual information

FIGURE 1. Teens who have seen online pornography, by age



# How Digital Engagement Is Shaping Adolescence

- Social Displacement
- Sleep Disruption
- Attention Fragmentation
- Addictive engagement patterns



**Girls :**  
**Internalizing distress**

**Boys:**  
**Reward-seeking  
externalizing behaviors.**



# Multilevel Determinants of Digital Addiction Risk



## Biological Vulnerability

- ADHD, anxiety, depression



## Weak parent-child bond

- Parental phubbing → emotional neglect → digital attachment



## Adversity & Emotional Risk •

- $\geq 4$  ACEs → 7–8× higher maladaptive coping behaviors (CDC)



## Peer & Social Context

- Social comparison, cyberbullying, peer pressure

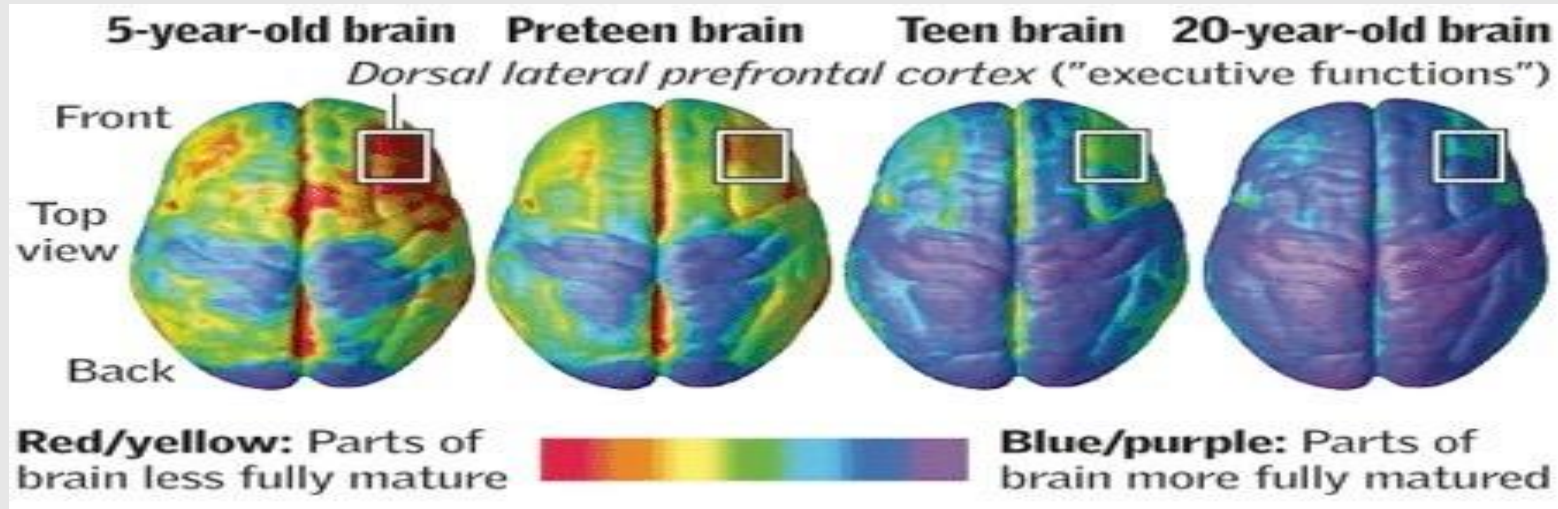


## Digital Exposure

### Factors

- Early smartphone access & high screen time

# Adolescence: A Critical Period of Unique Vulnerability



- ★ Heightened reward sensitivity
- ★ Immature prefrontal control
- ★ Identity formation & peer salience
- ★ Emotional reactivity > cognitive regulation
- ★ High neuroplasticity

# Neurobiology of Process Addiction

## 🧠 Reward Circuit Hijacking

- Dopamine surge in mesolimbic pathway (nucleus accumbens)

## ⚡ Neuroadaptation (Tolerance)

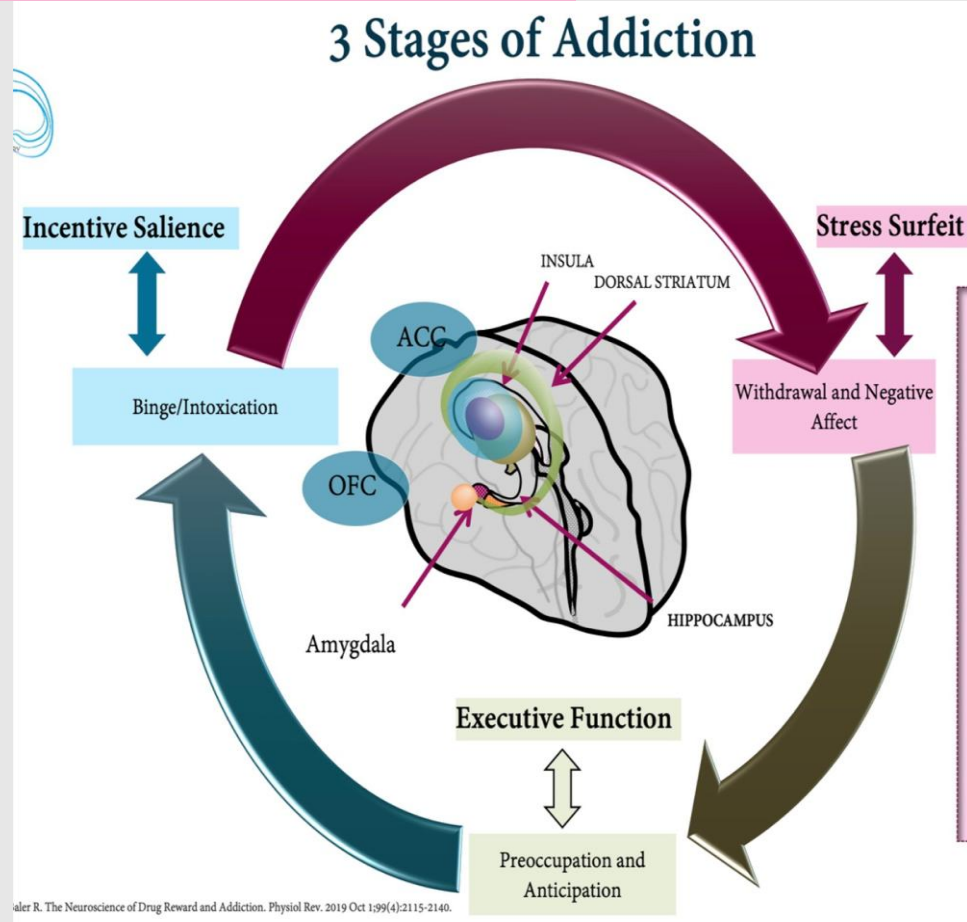
- Reduced pleasure from natural rewards → escalating digital use

## 🧩 Prefrontal Control Weakening

- Cue-induced urges triggered by notifications and app exposure

## 🔄 Amygdala Stress Loop

- Withdrawal → anxiety, irritability, negative affect



# Addressing Problematic Internet Use In Youth

Michael Silva, MD (PGY-5)

University of Washington Addiction Psychiatry Fellowship

# Outline of this section

1. Systems-based Interventions

1. Parent-based interventions

1. Psychotherapy

1. Medications

# Important note!!

*This is a developing, and burgeoning, topic!*

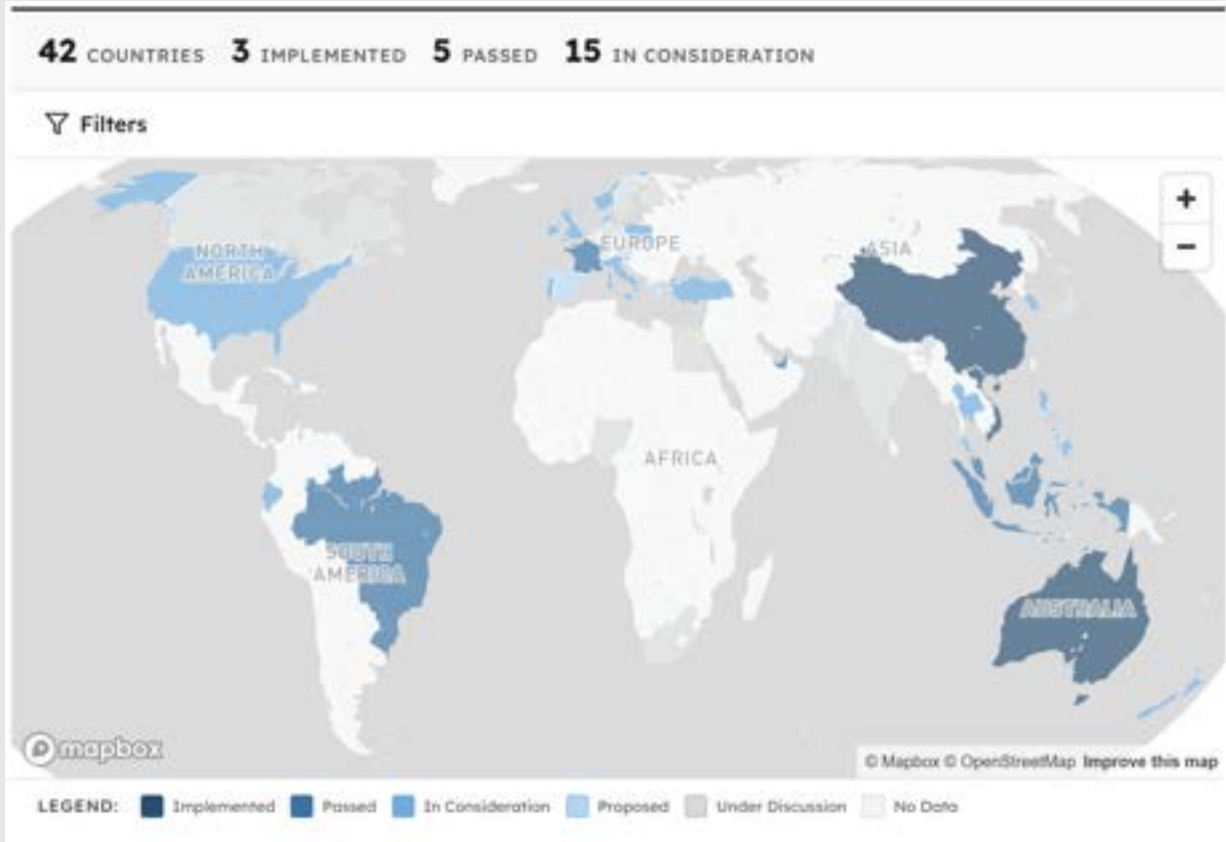
*Debate and differences of thought are very common...*

# Systems-based Interventions

“What can schools and governments do?”

“What are schools and governments already doing?”

# Governments



<https://www.techpolicy.press/tracking-efforts-to-restrict-or-ban-teens-from-social-media-across-the-globe/>



## Opinion

### The world wants to ban children from social media, but there will be grave consequences for us all

*Taylor Lorenz*

Age-verification systems require collecting sensitive data to support the biometric information. In no time, the internet will become a fully surveilled digital panopticon

01:00 EST Monday, 02 March 2026



<https://www.theguardian.com/commentisfree/2026/mar/02/ban-children-social-media-biometric-data-surveilled>



# Other ideas...

**Schools**: increase play/recess<sup>1</sup>

**Tech Companies**: better age verification<sup>1,2</sup>, parental controls<sup>1,2</sup>

**Governments**: support the above<sup>1,2</sup>, guide collective action<sup>1</sup>, research<sup>2</sup>



<https://www.seattlechildrens.org/directory/dimitri-a-christakis/>



<https://jonathanhaidt.com/bio/>



<https://faculty.sites.uci.edu/codgers/>



<https://www.social-connection.org/person/vivek-murthy/>

1. Haidt, J. (2024). *The anxious generation: How the great rewiring of childhood is causing an epidemic of mental illness*. Penguin Press. pp. 286-288.

2. United States Department of Health and Human Services. (2023). Social media and youth mental health: The U.S. Surgeon General's advisory. <https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf>

# Parent-Based Interventions

“How can I help my kids?”

# The AAP: Harm Reduction and Prevention



The screenshot shows the website for the Center of Excellence on Social Media and Youth Mental Health. At the top left is the logo for the Center of Excellence, Social Media and Youth Mental Health. To the right of the logo are navigation links: "5 Cs of Media Use", "Keep Me Updated", "Contact Us", "Request a Speaker", and "Research Corner". A green button labeled "Question & Answer Portal" is positioned on the far right. Below the navigation is a blue header with the title "Center of Excellence on Social Media and Youth Mental Health" and a breadcrumb trail: "Home / Patient Care / Media and Children / Center of Excellence on Social Media and Youth Mental Health". A row of social media icons (Facebook, Twitter, YouTube, Instagram, Email) is located below the breadcrumb. The main content area features a photograph of five diverse, smiling children. To the right of the photo is a text box with the following text: "The American Academy of Pediatrics **Center of Excellence (CoE) on Social Media and Youth Mental Health** is dedicated to creating a healthy digital ecosystem for children and adolescents." Below this is another paragraph: "This National Center will serve as a centralized, trusted source for evidence-based education and technical assistance to support the mental health of children and adolescents as they navigate social media." A small blue icon with a white figure is in the bottom left corner of the photo area, and a small blue icon with a white figure is in the bottom right corner of the text box. A vertical "Feedback Form" button is on the right edge of the page.

<https://www.aap.org/socialmedia>



# Glossary of Digital Media Platforms- AAP

The screenshot shows the AAP website's glossary page for Instagram. At the top left is the AAP logo and the text "Center of Excellence Social Media and Youth Mental Health". At the top right are navigation links: "Use of Media Use", "Keep Me Updated", "Contact Us", "Request a Speaker", "Research Corner", and a teal "Question & Answer Portal" button. The main heading is "Instagram" with the Instagram logo. Below it is a paragraph: "Instagram is a free photo, video and message-sharing app. Users can apply filters, text, emojis, hashtags, and other design features to make memes, images or videos more appealing or interesting to their followers. Users can also direct message followers." Below this is the text "Common Sense Media's Recommended Age for Using Instagram: 13+". A dark blue button with a left arrow says "Back to Platforms". To the right is a search bar with the placeholder "Search glossary by keyword or phrase" and a "Search" button. On the left is a "Topics" sidebar with a scroll bar, listing: Advertising, Age-Related Content Filters, Default Settings, Privacy, Feed Controls (E.g., Block, Report, State Not Interested), Messaging and Friend Controls, Nighttime Settings, Notification Settings, and Nudges to Take a Break. The main content area has a teal circle with a white "S" icon followed by the heading "Advertising". Below this is a paragraph: "Activity information from ad partners - This setting controls whether Instagram can show you relevant ads on Instagram based on your activity information from ad partners. If you turn off this setting, the ads you see may still be based on your activity on Instagram. They may also be based on information from a specific business that has shared a list of individuals or devices with Instagram, if Instagram matched your profile to information on that list." Below that is another paragraph: "All ads must follow Community Guidelines and Advertising Standards. **Instagram has additional policies in place for ads shown to teens (people under 18).** For example, Instagram's Advertising Standards prohibit ads about restricted topics, like alcohol, financial products, and weight loss products and services, to be shown to people under the age of 18. Additionally, Instagram limits the options advertisers can use to show ads to teens. For example, Instagram does not allow advertisers to select interests, behaviors, gender or activity on other apps and websites when choosing to show their ads to teens. Advertisers can decide to include teens in their audience based only on age and location." At the bottom is a paragraph: "Advertisers have more options for showing ads to adults. Since advertisers have more options when reaching adults, these audiences will have additional Ad settings to manage their personalized ads experience." At the bottom left is a blue circle with a white person icon and the text "Additional Platforms". At the bottom right is a blue circle with a white person icon.

# Interventions for Social Impairment

Follow only close friends on social media

Emphasize plans to socialize in person



# Interventions for Risky/Impulsive Internet Use

Delete apps or take breaks

Create distance from phone (at night, at work, etc.)

Create limits using settings



# Interventions for Emotional Impairment

Self-monitor (PRIUSS, “crowding out”)

Hobbies

Mindfulness

Longer-form media



# Other Ways Parents Can Intervene

Delay entry into digital world

Limit screen time

Little to no screen time in first 18-24 months

Tech-free activities

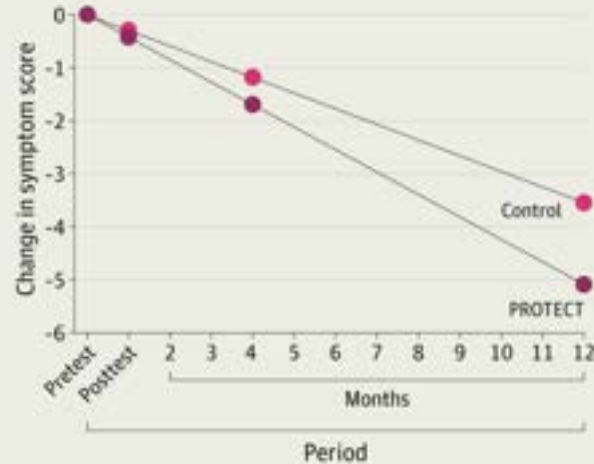
# Psychotherapy

“The most extensively-studied treatment options”

# CBT-Based Interventions: strongest evidence

## FINDINGS

Gaming disorder or unspecified internet use disorder symptom reduction was significantly greater in the PROTECT intervention group vs control group, but differences in incidence rates did not reach significance



39.8% Reduction of symptoms over 12 mo

27.7% Reduction of symptoms over 12 mo

# Other non-pharmacological treatments with evidence



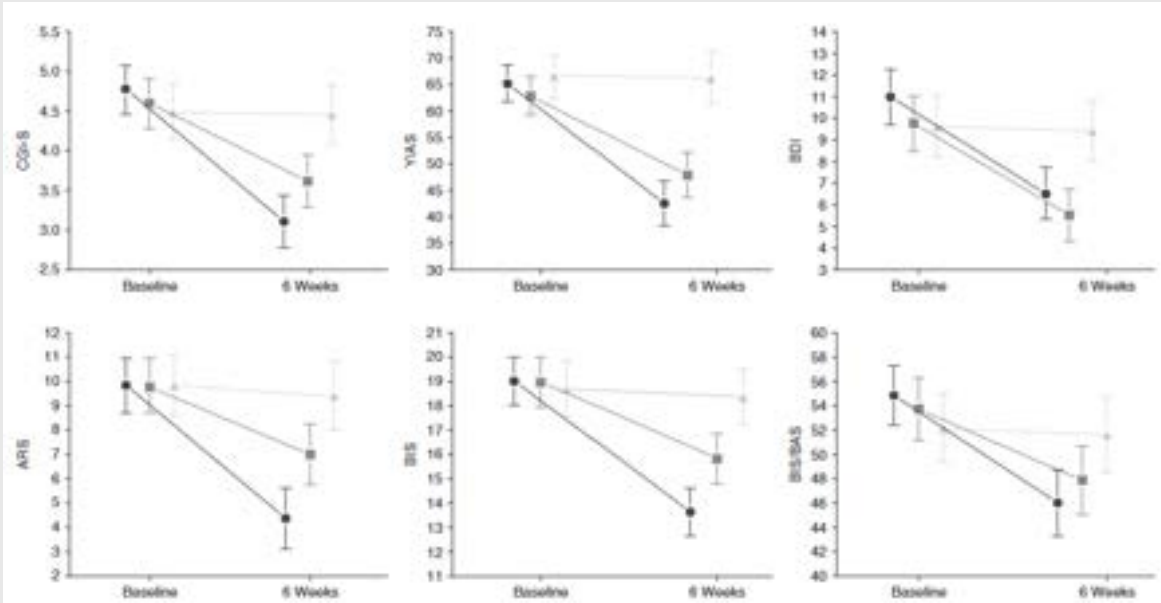
- Family-based therapies
- Mindfulness-based Psychotherapy and other mindfulness-based interventions
- Digital-based Interventions
- Many others (DBT, ACT, etc.)

# Medications

“What does the evidence show?”

# Medications for Problematic Internet Use

Figure 1 from Kim et al (2016) below.



(■) Bupropion. (●) Escitalopram. (▲) Observation.

**Bupropion<sup>1</sup>**

**Escitalopram<sup>2</sup>**

Also (not related to graph):

**Combined meds + CBT  
(and other therapies)<sup>3</sup>**

1. Han, D. H., & Renshaw, P. F. (2012). Bupropion in the treatment of problematic online game play in patients with major depressive disorder. *Journal of Psychopharmacology*, 26(5), 689–696. <https://doi.org/10.1177/0269881111400647>  
2. Kim, S. M., Han, D. H., Lee, Y. S., & Renshaw, P. F. (2016). Comparative study of the effects of bupropion and escitalopram on Internet gaming disorder. *Psychiatry and Clinical Neurosciences*, 70(11), 527–535. <https://doi.org/10.1111/pcn.12429>  
3. Chang, C. H., Chang, Y. C., Yang, L., & Tzang, R. F. (2022). The comparative efficacy of treatments for children and young adults with internet addiction/internet gaming disorder: An updated meta-analysis. *International Journal of Environmental Research and Public Health*, 19(5), 2612. <https://doi.org/10.3390/ijerph19052612>

# Emerging Treatments



<https://www.healthline.com/health/electroacupuncture>

- Repetitive Transcranial Magnetic Stimulation
- Transcranial Direct Current Stimulation
- Electroacupuncture (left)
- 12-Step Groups



**Internet and Technology Addicts Anonymous**

Questions?



THANK  
YOU!

