Hijacked: Digital Dopamine, Escapism, and the Power of Human Connection

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Presentation Objectives

1. **Describe** the neurobiological mechanisms of dopamine regulation and explain how excessive digital media use can contribute to symptoms such as anxiety, depression, insomnia, and impaired attention.
2. **Assess** patients' digital media habits using trauma-informed, nonjudgmental communication strategies and identify clinical indicators of digital dopamine dysregulation.
3. **Implement** at least two evidence-informed interventions, including digital detox strategies and connection-based approaches, to support patients experiencing functional impairment related to excessive digital media use.

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Financial Disclosures & Conflicts of Interests

I have no financial relationships or conflicts of interest to disclose.

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INTRODUCTION

In today's hyper-connected world, we are increasingly caring for people presenting with anxiety, depression, insomnia, and attention difficulties. We are witnessing the dissolution of human connection. What if many of the symptoms we are concerned about are rooted in brain overstimulation by endless digital input? What if we look beyond behavior and ask a different question: *What is the brain trying to regulate?*

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WHY THIS PROJECT INSPIRES ME

I am deeply troubled by the growing social consequences of smartphone addiction. It is heartbreaking to witness the erosion of human connection; couples drifting apart due to a lack of communication, and children missing out on the attention and emotional presence of their parents & other important adults. At this stage in my career, I am committed to focusing on de-prescribing and promoting functional medicine as a path toward true wellness. I believe these approaches empower patients to achieve sustainable, meaningful health outcomes, offering a more effective alternative to a reliance on psychopharmacological interventions.

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Alarming Facts About Children and Internet/Gaming Addiction

- Global prevalence of problematic smartphone/internet use is 15-30%, with much higher rates in adolescents.
- Up to 17% of children (ages 8–12) meet criteria for internet gaming disorder.
- Around 23% show problematic gaming behaviors, even if not fully "addicted."
- In the U.S., about 8.5% of children who play video games are considered addicted

That's not a small fringe group; it's a large minority of kids.

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Rates are Even Higher in Some Countries

- South Korea: ~24% of adolescents show high addiction scores
- China: ~15.5% of children are diagnosed with internet addiction, and children as young as 5 years old are being treated for internet addiction
- Europe: up to 12.3% of youth affected

Some regions are experiencing double-digit prevalence, which is very high for a behavioral disorder.

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Screen Time is Extremely High Worldwide

- Global average: 6+ hours/day online
- Some countries exceed 10 hours/day
- Teens in large international studies report ~49 hours/week on devices

That's the equivalent of a full-time job spent on screens.

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Addiction is Strongly Linked to Mental Health Problems

Children with excessive gaming/internet use show higher rates of:

- Depression & anxiety
- Loneliness and social withdrawal
- Aggression and family conflict
- Suicidal thoughts

This isn't just "too much fun", it's tied to serious psychological outcomes.

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Addiction Behaviors Can Mirror Substance Dependence

Children may:
- Feel withdrawal (irritability, anxiety when offline)
- Need increasing time online (tolerance)
- Lose control over usage

These patterns closely resemble classic models of addiction.

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Psychosocial and Family Impact of Digital Addiction

- Increased family conflict over screen time
- Children may withdraw from real-life relationships
- Some families report hundreds of arguments per year about device use

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Gaming Addiction is Now a Recognized Medical Condition

- The World Health Organization (WHO) officially classified gaming disorder as a diagnosable condition

This means the issue is serious enough to be recognized globally in medicine.

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The Problem is Growing, Not Shrinking

- Rates of internet/gaming addiction increased during and after COVID-19
- Youth are at a higher risk than adults; however, it is a growing epidemic in adults as well.

This is considered a rising public health concern worldwide.

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The Neurobiology: What Digital Dopamine Does to the Brain

What is dopamine anyway? Why is it important?

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Neuroscience of Digital Addiction

Brain imaging studies demonstrate that Internet Gaming Disorder shares neurobiological alterations with substance use disorders, including:

- Dopamine-mediated reward system activation similar in magnitude to drugs of abuse
- Reduced gray matter volume in prefrontal cortex, anterior cingulate, and orbitofrontal regions involved in impulse control and decision-making
- Disrupted functional connectivity in prefrontal-striatal circuits governing executive function and self-regulation. Adolescents show heightened vulnerability due to a developmental mismatch between reward-seeking and still-maturing impulse control

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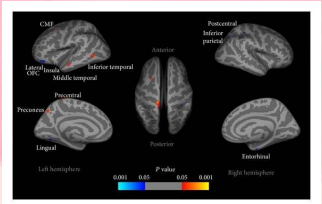
Brain Imaging Changes

The following figure illustrates cortical thickness differences in adolescents with IGD compared to healthy controls, showing both atrophy in control-related regions and enhancement in craving-related areas:



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Clinical Presentation and Comorbidities

Mental health: Depression, anxiety, suicidal ideation, ADHD (which may predispose to IGD), and nomophobia (No Mobile Phone Phobia-the irrational anxiety or fear of being without a mobile phone, losing signal, or running out of battery).
Physical health: Obesity, insomnia, dry eye, poor dietary habits
Academic/occupational: Poor grades, failed academic performance, neglect of obligations, individuals typically devote 8–10+ hours/day and 30+ hours/week to gaming
Social/family: Loss of relationships, deception, social isolation
**Gender differences are important to note: males more commonly present with gaming-related addiction, while females more often exhibit social media-related problematic use.

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Validated Screening Tools

- **Internet Gaming Disorder Scale–Short Form (IGDS-SF9)** and **Gaming Disorder Identification Test (GDIT)** for gaming
- **Bergen Social Media Addiction Scale (BSMAS)** for social media
- **Problematic Media Use Measure (PMUM)** and **PRIUSS** for broader problematic internet use in children and adolescents, endorsed by the American Academy of Pediatrics
- **ACSID-11** for simultaneous screening across multiple internet-use disorders (gaming, social media, online shopping, pornography, gambling)

**No single tool has been found clearly superior; screening should primarily target early detection in high-risk individuals.

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Evidence-Based Treatment Approaches

Cognitive behavioral therapy (CBT) is the most extensively researched treatment for reducing symptoms. The most common CBT practice elements are emotion regulation skills training, psychoeducation, and cognitive restructuring.
Combined CBT + mindfulness was the most effective intervention in network meta-analysis.
Family therapy combined with CBT or multilevel counseling shows particular promise in youth.
Pharmacotherapy may benefit patients with comorbid depression, though the evidence quality is low to moderate.
Health education interventions in school settings show promise for reducing internet addiction, especially with parental involvement.

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Multidisciplinary and Public Health Framework

A comprehensive response requires collaboration across all domains:
Educators: Digital literacy programs, school-based prevention, recognizing warning signs (declining grades, social withdrawal, fatigue)
Social workers/mental health professionals: Screening, early intervention, family-based approaches, addressing comorbidities
Law enforcement: Understanding behavioral presentations (agitation when devices are confiscated, domestic conflicts over gaming), recognizing this as a health issue rather than purely a behavioral one, and collaborative public health approaches
Health professionals/PMHNPs: Comprehensive assessment, evidence-based treatment (CBT, pharmacotherapy for comorbidities), and coordination of care

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Patient & Family Education

Education is one of the most impactful interventions!
Key teaching points for families:

- Set consistent screen time limits
  - Follow American Academy of Pediatrics guidance (e.g., structured limits, no screens before bed)
- Emphasize device-free routines:
  - meals
  - bedtime (at least 1 hour before sleep)
- Encourage:
  - physical activity
  - in-person social interaction

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How To Frame It

- Avoid “all screens are bad” messaging
- Focus on balance, boundaries, and brain health

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Important Educational Considerations

- Developmentally appropriate
- Culturally sensitive
- Reinforced over multiple visits
- Introduce replacement activities:
  - sports
  - hobbies
  - peer engagement
- Behavioral strategies:
  - Set screen schedules
  - Use parental controls
  - Gradual reduction (not abrupt removal)

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Population Health & Systems-Level Impact

Program development:

- School-based screening initiatives
- Community education campaigns
- Parent workshops on digital health

Policy & advocacy

- Advocate for:
  - safer digital environments
  - youth screen-time guidelines
- Collaborate with schools to promote:
  - digital literacy
  - healthy tech use

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Personal Connection

The Kitchen Table….

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Escapism

Why Do Kids Retreat Into Screens?

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Key Takeaways!!

1. **Seek the meaning behind the behavior**
2. **Be the protective factor**

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Call to Action
Why am I sharing this story with you?

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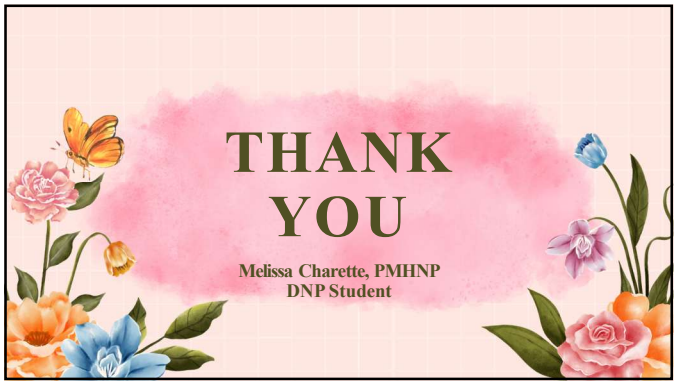
THANK YOU
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