

BRAVE NEW TECHNOLOGY FOR THE NEXT GENERATION: INTERNET GAMING DISORDER

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5/15/16 APA Atlanta, GA

CONFLICTS OF INTERESTS

- None

A CASE OF CS

- Case vignette deleted for privacy purpose

LEARNING OBJECTIVES

- Describe history of internet gaming
- Understand controversies surrounding diagnostic tools
- Recognize the limits of current epidemiology, comorbidity and neurobiology
- Be familiar with current evidences for pharmacotherapy, and referral resources
- Future direction
- Discussion

WHAT IS IGD?

- Is it gaming addiction?
- Is it internet addiction?
- Is it compulsion?
- What if someone was addicted to internet chat room?
- What if someone was addicted to gambling on internet?

WHAT IS IGD?

- No current consensus on diagnostic criteria
- Current diagnostic criteria varies
 - Young's Internet Addiction Test
 - Chen (Chinese) Internet Addiction Scale
 - DSM 5 substance use disorder criteria

WHAT IS IGD?

- Pre-occupation
- Withdrawal
- Tolerance
- Inability to reduce/stop
- Give up other activities
- Continue despite problems
- Deceive/cover up
- Escape adverse moods
- Risk/lose relationships/opportunities

HISTORY OF IGD

- **Games:**

- **Pong -> Donkey Kong - > Super Mario -> Tetris -> GameBoy® -> Doom -> PlayStation ® -> many others**

**PICTURE OF PACMAN, DELETED
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HISTORY OF IGD

- **Internet:**

- 1971 – 15 academic and military sites connected
- 1974 – the term *Internet* appears
- 1982 – Standardized protocol developed
- 1988 – First intercontinental connection
- 1991 – AOL
- 1996 – First mobile web
- 2010 - iPad

HISTORY OF IGD

- Internet Gaming
 - Text-based, crude, one on one games

**SCREENSHOT OF MUD GAME,
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HISTORY OF IGD

- Internet Gaming
 - Text-based, crude, one on one games
 - Late 1990s, rise of First Person Shooter, Real-Time Strategy, and MMORPG (Massive Multiplayer Online Role-Playing Game)

**SCREENSHOT OF WORLD OF
WARCRAFT PLAYING, DELETED
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HISTORY OF IGD

- Internet Gaming
 - Text-based, crude, one on one games
 - Late 1990s, rise of First Person Shooter, Real-Time Strategy, and MMORPG (Massive Multiplayer Online Role-Playing Game)
 - 2000s, MOBA (Multiple Online Battle Arena)

**SCREENSHOT OF LEAGUE OF
LEGENDS, DELETED FOR
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**SCREENSHOT OF DOTA,
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**SCREENSHOT OF VAINGLORY,
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HISTORY OF IGD

- Internet Gaming
 - Text-based, crude, one on one games
 - Late 1990s, rise of First Person Shooter, Real-Time Strategy, and MMORPG (Massive Multiplayer Online Role-Playing Game)
 - 2000s, MOBA (Multiple Online Battle Arena)
 - Many games/platform take on internet connectivity
 - PlayStation Network, XBOX Live

**SCREENSHOT OF BATTLE ROYALE,
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HISTORY OF IGD

- What is so special about gaming on internet?
 - Social aspects
 - Socialization
 - Competition
 - No pause – Persistence of the world (MMORPG)

**SCREENSHOT OF HEARTHSTONE,
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HISTORY OF IGD

- What is so special about gaming on internet?
 - Social aspects
 - Socialization
 - Competition
 - No pause – Persistence of the world (MMORPG)
 - Birth of new culture – eSports



DESCRIPTION

ENGLISH: THE STAGE AND CROWD AT KEY ARENA FOR THE INTERNATIONAL 2014






DATE 18 JULY 2014, 14:38:01

SOURCE [HTTPS://WWW.FLICKR.COM/PHOTOS/JAKOBWELLS/14516251507/IN/SET-72157645379601078](https://www.flickr.com/photos/jakobwells/14516251507/in/set-72157645379601078)

AUTHOR JAKOB WELLS

#1

Highest Total Prizes Awarded

 UNiVeRsE	\$2,159,965.64
 ppd	\$2,152,829.02
 Fear	\$1,932,620.19
 Aui_2000	\$1,888,028.64
 SumaiL	\$1,838,768.14

Dota 2

\$60,628,883.00

607 Tournaments

e-Sports Earnings is a community driven competitive gaming resource based on freely available public information. The accuracy of this website is dependent on user contributions. More help is always welcome.

Get involved:

- Join now and start editing!
- Visit the forums and interact with the community
- Leave a tip if you just want to share information

\$203,054,951.47 USD

In prize money recorded

17189 Tournaments

28202 Players









238 Games

411 Teams

Recent Tournaments

WePlay Dota2 League Seaso...	\$207,446.00
GSL Season 1 2016 (Code S)	\$159,286.40
CLVO Gfinity Pro-League Sea...	\$125,000.00
ESL EU Pro League 53	\$119,000.00
ESL NA Pro League 53	\$119,000.00
DreamHack Austin 2016 (CS:...	\$100,000.00
DreamHack Austin 2016 (Ho...	\$100,000.00
ESL Heroes of the Storm Cha...	\$100,000.00
DreamHack Austin 2016 (SC2)	\$50,000.00
ESWC Zenith 2016 COD	\$50,000.00

Recent Player Earnings

1.  Zest	Joo, Sung Wook	\$35,008.00	26.  Matumbaman	Lasse Urpalaimein	\$10,000.00
2.  DuBu	Duyoung, Kim	\$20,744.60	27.  MinD_ContRoL	Ivan Ivanov	\$10,000.00
3.  Febby	Kim, Yong Min	\$20,744.60	28.  shox	Richard Papillon	\$10,000.00
4.  Forev	Lee, Sang Don	\$20,744.60	29.  StrifeCro	Cong Shu	\$10,000.00

HISTORY OF IGD

- 1996 first article on problematic internet use KS Young
- Many evidences, studying thousands of adolescents and young adults
 - Mostly in East Asian countries, Adolescent males predominately at risk
- In DSM 5 in 2013 under Appendix for future research

EPIDEMIOLOGY

- In the U.S.
 - 1,182 students in continuation high schools in CA
 - 7.3% for male, 9.7% for female
 - By same standard, 5.8% Chinese female, 15.7% Chinese male
 - 3,560 HS students in CT - 3.5% for male, 4.5% for female
 - Asian Americans/Hispanic Americans more at risk
 - 1,470 college students - 7% male, 5.4% female
- In other countries
 - 0.8% in Italy to up to 20% of adolescents in S Korea
 - 1.2% in UK to 9.7% in Turkey for adults

ASSOCIATED FACTORS

- Male gender
- Asian American/Hispanic American for the U.S.
- Low self-esteem
- Family conflict
- Up to 50% of the patients with another Axis I psychiatric d/o
 - Depression, social anxiety, Bipolar d/o, Antisocial traits, ADHD, substance use,

NEUROBIOLOGY

- fMRI studies of 10 World of Warcraft players compared to healthy controls (Ko et al, 2009)
- R OFC, R Nucleus accumbens, B/L Ant Cingulate, Medial FC, R DL PFC, and R Caudate nucleus activated on fMRI
- Shares craving path in other substance dependence

SCREENING?

- Not enough study to validate need for screening
- Nor consensus on screening tools
- However, can invite a patient to talk more about it
- Some more sensitive questions in DSM 5 substance use disorder criteria
 - Inability to cut back on time spent on internet gaming?
 - Continue despite problems?
 - Risk/lose relationships or academic/professional opportunities?

MANAGEMENT

- Pt presents with CC of addiction to internet activity
 - As CS urged, do not dismiss it. Treat as if other addictions
 - Given the common comorbidity, rule out other psychiatric d/o

TREATMENT AVAILABLE

- Pharmacotherapy
 - Case reports
 - Naltrexone – compulsive sexual behavior
 - Citalopram/Quetiapine – Internet addiction with comorbid anxiety

TREATMENT AVAILABLE

- Pharmacotherapy
 - Case reports
 - RCT
 - fluvoxamine, sertraline, fluoxetine, clopramine for comorbid OCD
 - escitalopram ineffective for IGD by itself
 - Methylphenidate (strongest evidence) for comorbid ADHD
 - Bupropion mild effect on comorbid depression

TREATMENT AVAILABLE

- Pharmacotherapy
 - Case studies – naltrexone, Citalopram/Quetiapine
 - RCT - SSRI, TCA, bupropion, escitalopram, Methylphenidate
- Individual therapy
 - CBT – CBT-IA

TREATMENT AVAILABLE

- Pharmacotherapy
 - Case studies – naltrexone, Citalopram/Quetiapine
 - RCT - SSRI, TCA, bupropion, escitalopram, Methylphenidate
- Individual therapy
 - CBT – CBT-IA
- Group therapy/Family therapy for internet addiction also promising
- No studies have looked at programs such as what CS completed

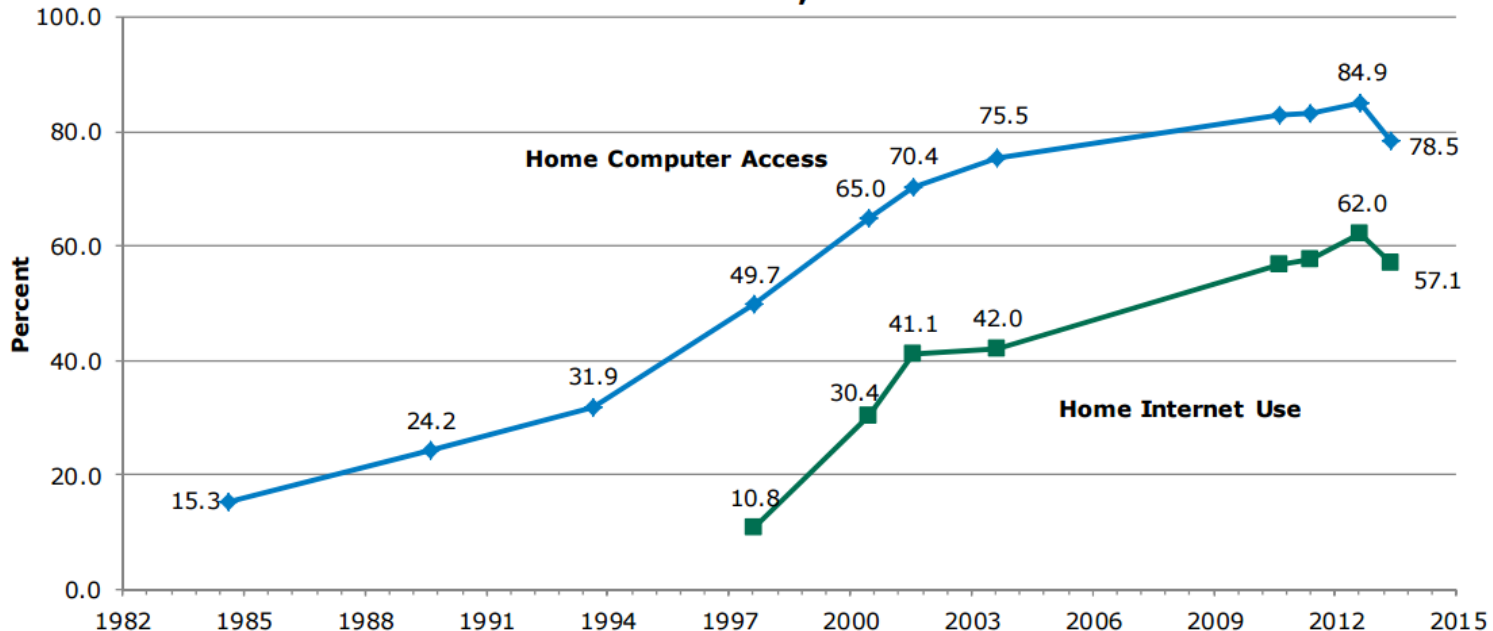
FUTURE DIRECTION

- In 2013, 73% of the U.S. homes had high-speed internet connection (DSL or faster)
- 84% of the homes had PC (8.2 % on 1984)
- 64% of all households had a hand-held computer (smartphone or tablets) in 2013

FUTURE DIRECTION

Figure 1

Percentage of Children Ages 3 to 17 Who Have Access to a Computer at Home and Who Use the Internet at Home, Selected Years, 1984-2013



Source: Data for 1984: Kominski, R. "Computer Use in the United States:1984." Current Population Reports, Series P-23, No. 155, U.S. Department of Commerce Economics and Statistics Administration, U.S. Census Bureau, March 1998. Data for 1989: Kominski, R. "Computer Use in the United States:1989." Current Population Reports, Series P-23, No. 171, U.S. Department of Commerce Economics and Statistics Administration, U.S. Census Bureau, October 1989. Data for 1993: "Computer Use in the United States: October 1993" U.S. Department of Commerce Economics and Statistics Administration, U.S. Census Bureau, October 1993. Data for 1997: Newburger, E. C. "Computer Use in the United States: 1997, Population Characteristics" Current Population Reports, P20-522, U.S. Department of Commerce Economics and Statistics Administration, U.S. Census Bureau, October 1997. Data for 2000: Newburger, E. C. "Home Computers and Internet Use in the United States: Special Studies" Current Population Reports, P23-207, U.S. Department of Commerce Economics and Statistics Administration, U.S. Census Bureau, August 2000.

Data for 2001: Child Trends calculations of data from U.S. Census. "Computer and Internet Use in the United States, 2001." Tables 2A and 4A.

Data for 2003: Child Trends calculations using data from U.S. Census. "Computer and Internet Use in the United States: October 2003."

Tables 2A and 4A. <http://www.census.gov/population/www/socdemo/computer/2003.html>. Data for 2010-2013:: Child Trends' original analysis of

October Current Population Survey

FUTURE DIRECTION

Associated with relying heavily on smartphones

Younger age

Low household income

Non-whites

Infant Self-Regulation and Early Childhood Media Exposure



WHAT'S KNOWN ON THIS SUBJECT: Several studies suggest that excessive media use in early childhood predicts poorer developmental outcomes. It has not been studied whether infants with self-regulation problems, who may be at higher developmental risk, develop excessive media use habits.



WHAT THIS STUDY ADDS: This study shows that infants and toddlers with self-regulation difficulties (ie, problems with self-soothing, sleep, emotional regulation, and attention) view more media at 2 years of age, independent of other important confounders.

abstract



OBJECTIVES: Examine prospective associations between parent-reported early childhood self-regulation problems and media exposure (television and video viewing) at 2 years. We hypothesized that children with poor self-regulation would consume more media, possibly as a parent coping strategy.

METHODS: We used data from 7450 children in the Early Childhood Longitudinal Study–Birth Cohort. When children were 9 months and 2 years old, parents completed the Infant Toddler Symptom Checklist (ITSC), a validated scale of self-regulation. With daily media use at 2 years as our outcome, we conducted weighted multivariable regression analyses, controlling for child, maternal, and household characteristics.

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KEY WORDS

self-regulation, infant, fussy infant, media, television

ABBREVIATIONS

AAP—American Academy of Pediatrics

aOR—adjusted odds ratio

CI—confidence interval

ECLS-B—Early Childhood Longitudinal Study–Birth Cohort

HOME-SF—Home Observation for Measurement of the Environment–Short Form

ITSC—Infant Toddler Symptom Checklist

SES—socioeconomic status

Dr Radesky conceptualized and designed the study, completed the data analysis, and drafted the manuscript; Drs Silverstein, Zuckerman, and Christakis aided in analysis design, and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.

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Infants who watch more media have poorer self-dysregulation

Mobile and Interactive Media Use by Young Children: The Good, the Bad, and the Unknown

Jenny S. Radesky, MD, Jayna Schumacher, MD, Barry Zuckerman, MD

The use of interactive screen media such as smartphones and tablets by young children is increasing rapidly. However, research regarding the impact of this portable and instantly accessible source of screen time on learning, behavior, and family dynamics has lagged considerably behind its rate of adoption. Pediatric guidelines specifically regarding mobile device use by young children have not yet been formulated, other than recent suggestions that a limited amount of educational interactive media use may be acceptable for children aged <2 years.¹ New guidance is needed because mobile media differs from television in its multiple modalities (eg, videos, games, educational apps), interactive capabilities, and near ubiquity in children's lives. Recommendations for use by infants, toddlers, and preschool-aged children are especially crucial, because effects of screen time are potentially more pronounced in this group. The aim of this commentary is to review the existing literature, discuss future research directions, and suggest preliminary guidance for families.

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Dr Radesky conceptualized the article and cowrote, reviewed, and revised the manuscript; Dr Schumacher cowrote,

EARLY CHILDHOOD INTERACTIVE MEDIA USE: EVIDENCE AND THEORY

DISCUSSION

- Are we creating a problem when there is not?
- Was internet gaming to blame for our case's decompensation?
- Given the advance in technology, will IGD get worse in the future?
- How is it similar/different from other behavioral addiction?