When #PlayApartTogether Takes a Dark Turn
Disclosures

• I am the associate editor-in-chief of *Advances in Clinical Medical Research and Healthcare Delivery*, RRH’s medical journal.

• I am the associate editor-in-chief of *Journal of Community Hospital Internal Medicine Perspectives*.

• I receive no compensation for either position and have no conflicts of interest to disclose.
**Agenda**

- Review goals of morbidity & mortality
- Historical unknown introduced
- Case presentation
- Rise of E-Gaming as a Sport
- Some internet-related activities and COVID-19
- Fishbone analysis
- Panelist Q & A
- Historical unknown...revealed!

**Disclaimer:** Cyberbullying and spreading of rumors or disinformation are beyond the scope of this conference.

But, if you really want to read a fun, quick article on this, check out:

*YouTube as a source of information on the COVID-19 pandemic*

Reynold Andika*, Chien T. Kao*, Christopher Williams, Young J. Lee*, Hassan Al-Battah* and Richard Alweiss
Goals of Morbidity & Mortality Conference

• Promote “just culture”
  • Objective non-judgmental review of adverse outcomes
  • Engage in systematic process evaluation while maintaining individual accountability
• Demonstrate understanding of the recognition and management of the disease state
Historical Unknown
It's not a person, but a thing....

• 2 player mathematical strategy game
• Players take turns removing objects from distinct piles; there are usually at least 3 piles of varying sizes
• On each turn, a player must remove at least one object from a single pile; you can take the whole pile
• Depending on the version, the goal is either to avoid taking or to take the last object
It's not a person, but a thing....

• 16th Century

• 1901

• 1940

The [Redacted] in 1940
Case Presentation
Office Visit

• 34 yo Caucasian male presents to PCP with difficulty concentrating and increased time spent playing video games.

• Endorses 14 hrs/day of gaming, beginning to affect his work in IT (pre-COVID, 2 hrs/day)

• Prior to pandemic, socialized weekly with friends; now, due to not being vaccinated, interacts only through online gaming
  • Patient believes COVID vaccine conspiracy theory regarding Bill Gates and will not consider vaccination
Office Visit

• PMH:
  • Obesity
  • Type 2 DM (on metformin)
  • Depression and Anxiety
    • Frequently takes himself off treatment for depression and anxiety
    • Previously successfully treated with bupropion and paroxetine
  • MVA at age 12 with skull fracture, TBI, prolonged coma; since that time, reports difficulty concentrating

• SHX: no EtOH, drugs of abuse, no TOB, lives in parents’ basement
Office Visit

• Depressed-appearing affect
• BMI: 46.2 kg/m²
• Rest of vitals normal, as was remainder of physical exam
• PHQ9 score 13
• GAD7 score 7

• Recent labwork: HgA1C 7.3%, TSH WNL
The Growth of E-Gaming as a Sport
E-gaming as a Sport

- Big Business -- $2.3 billion market

<table>
<thead>
<tr>
<th>Championship</th>
<th>2014 Viewers (in millions)</th>
<th>2021 Viewers (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stanley Cup</td>
<td>5</td>
<td>2.41</td>
</tr>
<tr>
<td>World Series</td>
<td>13.8</td>
<td>9.78</td>
</tr>
<tr>
<td>NBA Finals</td>
<td>15.5</td>
<td>9.91</td>
</tr>
<tr>
<td>League of Legends</td>
<td>27</td>
<td>78.6</td>
</tr>
</tbody>
</table>

E-Sports Stadium in Arlington, Texas
Seats: 2500

Copper Box Arena in London, England
Seats: 7500

661.16 million hours of logged watch time
E-gaming as a Sport

• 2014: 1st scholarship varsity e-sports team established at Robert Morris University (Illinois)
• 2016: 1st Division 1 varsity e-sports team at Miami (Ohio) University
• NACE (National Association of Collegiate E-sports)
Internet-Related Activities and COVID-19

1) Smartphone Usage
2) Gambling
3) Pornography
4) Gaming
Hypothetical Positives of Internet Gaming

• Release emotions
• Stress reduction and safer than alcohol, drugs, or overeating
• Escapism from difficult realities
• Social opportunities, reducing loneliness
Smartphone Usage During COVID

- Smartphone stimuli
- 6 hours and 42 minutes per day
- 52.9% of adults 18-29 years of age meet problematic usage criteria with 10-44% estimated to have frank addiction


David N. Greenfield, Treatment Considerations in Internet and Video Game Addiction: A Qualitative Discussion, Child and Adolescent Psychiatric Clinics of North America, Volume 27, Issue 2, 2018, Pages 327-344,
Online Gambling

Prevalence

Risk Factors


Online Gambling

• Online gambling linked to mental health outcomes, substance use, and problematic gambling

• Specific concerns regarding gambling during pandemic

• Online gambling increased slightly, amount of money spent on it did not


Online Pornography During COVID


Internet Gaming Disorder
Gaming and COVID

• #HealthyAtHome

• #PlayApartTogether

• The encouragement and expansion of playing video games may have led to the unintentional consequence of increasing the prevalence of IGD as IGD has been postulated to be a maladaptive response to stress

• Certain game genres are associated with higher rates of problematic internet usage:
  • FPS (first person shooters)
  • RPG, particularly MMORPGs (Massively Multiplayer Online Role-Playing Games)
  • Online casinos
IGD – What is it?

W. Barlow Soper
Mark J. Miller

Junk-Time Junkies: An Emerging Addiction Among Students

Blinky  Pinky  Inky  Clyde

IGD – What Is it?

- 2013: DSM-5
- 2018: ICD-11

Table 1. DSM-5 criteria for internet gaming disorder.¹

<table>
<thead>
<tr>
<th>Proposed criteria for Internet gaming disorder:</th>
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<tbody>
<tr>
<td>a- Preoccupation with Internet games (individual thinks about previous gaming activity or anticipates playing the next game; Internet gaming becomes the predominant activity in daily life)</td>
</tr>
<tr>
<td>b- Withdrawal symptoms when the Internet is taken away (typically irritability, anxiety, sadness)</td>
</tr>
<tr>
<td>c- Tolerance (the need to spend increasing amounts of time on Internet games to achieve the same “high”)</td>
</tr>
<tr>
<td>d- Unsuccessful attempts to control or cut down the participation in Internet games</td>
</tr>
<tr>
<td>e- Loss of interest in previously enjoyable activities with the exception of Internet gaming</td>
</tr>
<tr>
<td>f- Continued excessive use despite knowledge of negative psychosocial problems</td>
</tr>
<tr>
<td>g- Has deceived family members, therapists, or others regarding time spent on gaming</td>
</tr>
<tr>
<td>h- Use of Internet games to escape or improve dysphoric mood</td>
</tr>
<tr>
<td>i- Jeopardized or lost relationships, jobs, educational opportunities because of Internet use</td>
</tr>
</tbody>
</table>

Presence of 5 or more of these symptoms in the past 12 months in addition with persistent, maladaptive and recurrent use of the Internet is required for diagnosis.
IGD – How common is it?

• Different diagnostic instruments used, which makes calculating prevalence difficult

• Pre-COVID, studies using DSM-5 criteria found widely variable prevalences around the world


IGD – How common is it?

• Studies done during COVID were all small cross-sectional:

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Population</th>
<th>Mean Age (standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balhara et al</td>
<td>India</td>
<td>393</td>
<td>19.6 (1.9)</td>
</tr>
<tr>
<td>Higuchi et al</td>
<td>Japan</td>
<td>80</td>
<td>18.9 (6.4)</td>
</tr>
<tr>
<td>Sundaray et al</td>
<td>India</td>
<td>30</td>
<td>Only reported as 18+</td>
</tr>
</tbody>
</table>

• Key findings
  • **Prevalence roughly 50%**
  • Positives: generally viewed by patients as effective at reducing stress
  • Negatives: significant increases in reports of loneliness and panic attacks

IGD—What travels with it?

• Co-existing depressive symptoms and attention disorders were more likely in those with IGD as compared to peers.

• Risk related to social isolation and poor interpersonal skills exists.
  • Those with poor social skills and subsequent social dysfunction will worsen when they start to develop symptoms of IGD.
IGD—How does it develop?

• Interaction of Person-Affect-Cognition-Execution (I-PACE) Model
  • For developing addictions, originally done for internet-related addictions, now more generalized

IGD—How does it develop?

• Maladaptive cognitions = cognitive distortions and harmful beliefs of gaming
  • Three specific types derived from a systematic review of 36 studies were associated with IGD
    • Perceived overvaluation of rewards of internet gaming (e.g., feeling better and more in control)
    • Perceived urges (eagerness) for playing internet games in real life
    • Perceived unwillingness to stop playing without completion of gaming tasks (e.g., “Just one more turn” or repeated attempt when not successful)
  • The maladaptive cognitions interact with the continual stimuli provided by devices and the internet (constant scrolling, popups, sounds) to maintain excessive Internet usage through a cycle of transforming cognitions and reinforcement

IGD-How does it develop?

• These maladaptive cognitions then interact with loneliness and social anxiety and seem to reduce the dosage effect needed to move from healthy internet gaming/usage to IGD
  • Loneliness (a social cognition)

• Social anxiety (psychopathology)

• Social Cognition + Psychopathology elevates the gratification of internet gaming, which may result in IGD

IGD-How do I screen for it/judge its severity?

• Several research tools utilized specific to IGD
  • DSM-5 criteria checkbox (yes/no for each criteria, 5 or more = probable IGD) generally recognized as a valid way to screen for IGD (sensitivity 73.6%, specificity 100%)
  • Internet Gaming Disorder Test (IGD-20)
  • 9 item short-form Internet Gaming Disorder Scale (IGDS-SF9)
  • MOGS
  • There are multiple others, but ones above validated in American gamers

The Internet Gaming Disorder Test (IGD-20 Test) (Pontes et al., 2014)

Instructions: These questions relate to your gaming activity during the past year (i.e., 12 months). By gaming activity we mean any gaming-related activity that was played on either a computer/laptop, gaming console and/or any other kind of device online and/or offline.

1. I often lose sleep because of long gaming sessions.
2. I never play games in order to feel better.
3. I have significantly increased the amount of time I play games over last year.
4. When I am not gaming I feel more irritable.
5. I have lost interest in other hobbies because of my gaming.
6. I would like to cut down my gaming time but it's difficult to do.
7. I usually think about my next gaming session when I am not playing.
8. I play games to help me cope with any bad feelings I might have.
9. I need to spend increasing amounts of time engaged in playing games.
10. I feel sad if I am not able to play games.
11. I have lied to my family members because the amount of gaming I do.
12. I do not think I could stop gaming.
13. I think gaming has become the most time consuming activity in my life.
14. I play games to forget about whatever’s bothering me.
15. I often think that a whole day is not enough to do everything I need to do in-game.
16. I tend to get anxious if I can’t play games for any reason.
17. I think my gaming has jeopardized the relationship with my partner.
18. I often try to play games less but find I cannot.
19. I know my main daily activity (i.e., occupation, education, homemaker, etc.) has not been negatively affected by my gaming.
20. I believe my gaming is negatively impacting on important areas of my life.
**Internet Gaming Disorder Scale—Short-Form (IGDS9-SF) (Pontes & Griffiths, 2015)**

**Instructions:** These questions will ask you about your gaming activity during the past year (i.e., last 12 months). By gaming activity we understand any gaming-related activity that has been played either from a computer/laptop or from a gaming console or any other kind of device (e.g., mobile phone, tablet, etc.) both online and/or offline.

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
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</thead>
<tbody>
<tr>
<td>1. Do you feel preoccupied with your gaming behavior? (Some examples: Do you think about previous gaming activity or anticipate the next gaming session? Do you think gaming has become the dominant activity in your daily life?)</td>
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<td>2. Do you feel more irritability, anxiety or even sadness when you try to either reduce or stop your gaming activity?</td>
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<td>3. Do you feel the need to spend increasing amount of time engaged gaming in order to achieve satisfaction or pleasure?</td>
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<td>4. Do you systematically fail when trying to control or cease your gaming activity?</td>
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<td>5. Have you lost interests in previous hobbies and other entertainment activities as a result of your engagement with the game?</td>
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<td>6. Have you continued your gaming activity despite knowing it was causing problems between you and other people?</td>
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<td>7. Have you deceived any of your family members, therapists or others because the amount of your gaming activity?</td>
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<tr>
<td>8. Do you play in order to temporarily escape or relieve a negative mood (e.g., helplessness, guilt, anxiety)?</td>
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<tr>
<td>9. Have you jeopardized or lost an important relationship, job or an educational or career opportunity because of your gaming activity?</td>
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</table>
MOGS

1. I continue to play despite I think it would be better to stop.
2. I have no control over how much time I play.
3. Once I start online gaming, I cannot stop.
4. Online gaming makes me lose control.
5. Thoughts about online gaming interfere with my functioning.
6. Thoughts about online gaming are becoming an obsession.
7. Online gaming makes my worries more bearable.
8. Online gaming reduces my negative feelings.
9. Online gaming helps me to control my negative thoughts.
10. Online gaming stops me from worrying.
11. Online gaming reduces my anxious feelings.
12. Online gaming distracts my mind from problems.

IGD – How do I treat it (non-medication)?

• Pediatric and adolescent considerations

• CBT
IGD – How do I treat it (medication)?

• Efficacy demonstrated to mild degree for various antidepressants, opioid receptor antagonists and partial agonists, mood stabilizers, antipsychotics, glutamatergic drugs, N-methyl-D-aspartate receptor antagonists, and psychostimulants

• Most studied is bupropion


Fishbone Analysis:
Adverse Event = Delay in Diagnosis
Fishbone: A Reminder

- **People**
  - Staffing levels
  - Competing priorities
  - Quality

- **Equipment/Supplies**

- **Process/Policy**
  - Knowledge/skill of HCW
  - Role definition
  - Referral system
  - Coordination between different levels of care
  - Management of social/economic barriers
  - Availability vs. demand for facilities

- **Environment**
  - Size/Location
  - Ease of communication

Undesired outcome

ROCHESTER REGIONAL HEALTH
What contributed to the unfavorable outcome?

• People Factors:
  • Recognition of psychiatric disease vs. boredom/tail end of bell curve of normal behavior
  • Was treatment chosen appropriate

• Process and Policy:
  • Referral System/Coordination Between Different Levels of Care
    • Early days of COVID – access to video visits, behavioral health resources for those unwilling to leave their home limited
  • Management of Social and Economic Barriers:
    • Patient stigmatizes psychiatric disease
    • Patient refuses COVID vaccination, which prevents return to in-person workplace
Panelist Q & A
Questions

• Given that e-gaming is now considered a sport, where does the line get drawn between playing the sport of your choice to master your skills and identifying potentially problematic behavior? For example, if someone were to say that they are a varsity baseball player and they spend 3 hours per day at team practice, 2 hours per day in small group/1:1 fielding and hitting practice, and 1 hour per day watching video of opposing pitchers, this would not raise eyebrows (probably).

• Which screening tool do you recommend for IGD?

• Given the omnipresence of the internet, how do you maintain remission in your patients?
Historical Unknown Revealed: Credit given for the name of game or name of the machine
It's not a person, but a thing...

• 1940: New York World’s Fair, Westinghouse displayed a machine, the Nimatron that played the game against a human, considered the first-ever electronic computerized game.

• 1951: The world’s first computer game, an evolution of the Nimatron called NIMROD, is released.

• The game is called Nim.

For more information, check out: Exploring The Game of Nim (opengenus.org)
Any questions?
Thank you!