

## Internet Gaming Disorder (IGD)

### History

- Earliest reference to problematic video gaming was in relation to Pac-Man (Barlow Soper & Miller, 1983)
- Online gambling mentioned as problem as early as 1996 (Shaffer, 1996)
- 'Gamers' make up about 66% of the US population, 46% are female, and the largest age bracket is within the 18-35 year range who make up 40% of gamers (Statista, 2019)
- Different games;
  - Multiplayer combat: Often played online with and against other people
    - E.g. Fortnite
  - Single player games: Often offline
    - E.g. Tetris, Tomb Raider, Goldeneye 64, Spider-Man
  - MMORPG's: Online role-playing games with immersion in a fictional world
    - E.g. World of Warcraft, Runescape, Star Wars: The Old Republic
- Why games are so engaging?
  - Designed to be challenging yet achievable in a supportive environment where you are needed by the people of the world within the game (McGonigal, 2010)
  - Immersion allows for realistic role play; you can be a hero or a villain
    - Research on virtual reality forms of exposure therapy shows the considerable effect of virtual environmental stimuli on our perception
  - Anonymity – you can become your gamer tag/avatar instead of your offline persona
    - E.g. Ash is referred to as hellsw0rth in gaming circles

### Problematic Gambling Online

- Gambling Disorder is in the DSM-5 under Substance-Related and Addictive Disorder. No unique specifiers for online gambling, but there are in the ICD.
- Research tends to focus on either online or offline gambling, with little evidence that they are distinct phenomena. It may be the case that the internet has merely made gambling more accessible, particularly to groups of people who may otherwise not have ready access to casinos, or those who prefer to be alone.
  - Online gamblers may prefer the anonymity and privacy afforded by internet outlets (Gainsbury, Wood, Russell, Hing, & Blaszczynski, 2012)
  - May appeal to people with disabilities. A survey of online gamblers found that among those who qualified as being 'problem gamblers', 25% indicated they had a long-standing illness or disability, where among the total sample of online gamblers, those with a disability constituted only 12.6% (McCormack, Shorter, & Griffiths, 2013)
  - That same survey found that, compared to non-problem online gamblers, online problem gamblers were more likely to be male, gamble alone, and gamble online for more than 4 hours at a time, as well as drink alcohol while they gamble.
    - This doesn't sound too different from online gaming, but research on Spanish gamers and gamblers found that the gamers were more likely to be younger, single, and unemployed. (Mallorqui-Bague et al., 2017)
- Online gamblers tend to engage in riskier gambling behaviour than offline gamblers (Cole, Barrett, & Griffiths, 2010; Kairouz, Paradis, & Nadeau, 2012)
  - Could also be due to different forms of gambling online. A survey of Canadian gamblers found that online gamblers were more likely to play poker (5.4% vs 66.6%). Online gamblers were more likely to play every other game than offline gamblers, except the lottery (Kairouz et al., 2012).

### Diagnosis

- What is pathological gaming?
  - A review of assessment tools of pathological gaming found consensus among them on factors such as *withdrawal, loss of control, and relationship conflict* (King, Haagsma, Delfabbro, Gradisar, & Griffiths, 2013).

- A study of correlates with problematic gaming behaviour found the strongest (moderate) correlation with addiction acknowledgement, endorsing items around the use of gaming to relax after a bad day, and playing is the only way 'to be myself' (Spekman, Konijn, Roelofsma, & Griffiths, 2013)
- IGD in section three of DSM-5 ("conditions for further study") are proposed diagnostic criteria
  - Causes distress or impairment as indicated by **five or more** of the following within a 12 month period
  - Preoccupation with Internet games (except for internet gambling)
  - Withdrawal symptoms when Internet gaming is taken away
  - Tolerance – the need to spend increasing amounts of time engaged in internet games
  - Unsuccessful attempts to control the participation in Internet games
  - Loss of interests in previous hobbies and entertainment as a result of, and with the exception of, Internet games
  - Continued excessive use of Internet games despite knowledge of psychosocial problems
  - Has deceived family members, therapists, or others regarding the amount of Internet gaming
  - Use of Internet games to escape or relieve a negative mood
  - Has jeopardised or lost a significant relationship, job, or educational or career opportunity because of participation in Internet games.
  - Specifiers: mild, moderate, or severe depending on degree of disruption in normal activities.
- Gambling Disorder in the DSM-5 has very similar diagnostic criteria, with a few differences
  - Often gambles when feeling distressed"
  - After losing money gambling, often returns another day to get even ("chasing" one's losses).
  - Relies on others to provide money to relieve desperate financial situations caused by gambling.
  - Must not be explained by a manic episode.

### The Diagnostic Debate

- Members of the APA workgroup behind the inclusion of IGD mentioned the need for consistent measurement of gaming addiction, and proposed the criteria as a starting point to get the ball rolling (Petry & O'Brien, 2013)
- A group of researchers then published an outline of how best to assess each of the criteria, claiming to be the product of international consensus (Petry et al., 2014). This caused controversy.
- Another group of researchers hit back, and brought up several key points that highlight a failure to distinguish between adaptive and maladaptive behaviour (M. D. Griffiths et al., 2016)
  - 'withdrawal' isn't very clear and needs to refer to unpleasant symptoms (e.g. irritable, moody, anxious, etc...) after stopping gaming or prevented from playing.
  - 'tolerance' is a relic from the application of substance addiction and does not fit easily with gaming addiction. Increasing time spent playing is problematic given the obvious ceiling limitation. Cannot refer to increased money spent on gaming rigs as this would include professional and hobby gamers.
  - They concur that inability to stop playing in spite of a desire to stop (lack of control) is a defining characteristic of IGD.
  - 'giving up other activities' may also capture normal developmental processes (i.e. adolescents stepping away from their parents leisure activities in pursuit of their own) as well as being a symptom of Major Depressive Disorder.

- 'deception' may not be very likely for either the adolescent gamer at home, or the addict who lives alone.
- 'escape adverse moods' is another defining characteristic
- 'loss or risk of loss of opportunities' not defining; this factor has been endorsed even by non-disordered gamers. Needs to emphasise that failure to pursue opportunities due to time spent gaming.
- 'Internet' is misleading in the name of the disorder, as games are not necessarily all played online (Krossbakken, Pallesen, Molde, Mentzoni, & Finseras, 2017; Kuss, Griffiths, & Pontes, 2017a)
  - However, one study has found a difference in outcomes between online- and offline-gamers, where online gamers were more likely to score higher on measures of interpersonal conflict and social isolation (Smohai et al., 2017). But this study did not investigate pathological gaming specifically.
- Reasons and motivations for problematic behaviour are important when making a diagnosis, and the diagnostic criteria for IGD fails to do this (Carbonell, 2017)
- Significant impairment on daily functioning needs to be a focus when making a diagnosis – something that may be missed from the IGD criteria (Krossbakken et al., 2017; Kuss, Griffiths, & Pontes, 2017b)

### Prevalence

- Meta-analysis: Prevalence among adolescents at 4.6%; 6.8% among boys, 1.3% among girls (Fam, 2018)
- Prevalence among German sample (12-25 years); around 7%, 8.4% males, 2.9% females (Wartberg, Kriston, & Thomasius, 2017)
- Systematic review: prevalence ranged from 0.7-27.5% (Mihara & Higuchi, 2017)

### Outcomes

- It has been suggested that the harm associated with IGD lies in the extreme time investment in the activity, resulting in diminished time available for basic daily activities such as hygiene and sleep, real world social interaction, and duties/responsibilities (King & Delfabbro, 2018)
- A longitudinal study of children and adolescents in Singapore found pathological gaming was associated with poorer grades and poorer relationships with parents, as well the development of normative beliefs about aggression, and hostile attribution biases. Increased levels of depression, anxiety – including social anxiety. (Gentile et al., 2011)
- A correlational study of Norwegian adolescents found associations with depression, lower academic achievement, and conduct problems – but these were not related to time spent on gaming (Brunborg, Mentzoni, & Froyland, 2014)
- Other correlations with IGD observed include depression, loneliness, social anxiety, and low self-esteem (Kircaburun, Griffiths, & Billieux, 2019)

### Aetiology: Risk and Protective Factors

- Risk factors include; lower social competence and poor emotional regulation – suggesting that gaming may be a coping mechanism (Gentile et al., 2011)
  - Especially given that it has been associated with childhood emotional trauma and dysfunctional family relationships (Kircaburun et al., 2019; Torres-Rodriguez, Griffiths, Carbonell, & Oberst, 2018)
- Low trait extraversion has been identified as a likely risk factor (Muller, Beutel, Egloff, & Wolfling, 2014)
- Impulsivity and anxiety (Rho et al., 2017)
- Protective factors include adaptive emotional regulation strategies, specifically positive reappraisal of stressful events (as opposed to rumination or catastrophising) (Kokonyei et al., 2019)

- It has been suggested that the greater prevalence among males can be explained by females having better executive control when it comes to resisting gaming-related behavioural cues (Dong et al., 2018)

## Models

- Components model of [behavioural] addiction (M. Griffiths, 2005)
  - Salience: The degree of importance it is within a person's life; how much it dominates their thoughts and behaviour. Even thinking about the activity/behaviour when they are not currently engaged in it. Has implications for withdrawal – the higher the salience, the more intense the withdrawals will be.
  - Mood modification: The change in subjective experience following the activity/behaviour. Similar to a buzz/high that is experienced following consumption of psychotropic substances. This has implications for the motive behind engagement, where expectation that the activity/behaviour will result in a changed mental state is the reason it is engaged in (i.e. expectation effects). This also leads to self-medication as a coping strategy.
  - Tolerance: Where increased amounts of the activity are needed to achieve the effects previously gained by a smaller amount. Does not necessarily have to refer to increased time, can refer to increased involvement in some way – e.g. increased size of bets with problem gambling.
  - Withdrawal: Unpleasant emotional or physical states following cessation of the activity. Can be psychological or physiological.
  - Conflict: Interpersonal: conflict with those around them, Intrapsychic: inner conflict. Intrapsychic conflict can result from loss of control – referring to the conflict between desires to engage in the activity as well as higher order desires to abstain from doing so (“I know I shouldn't, but I can't help myself”)
  - Relapse: Reversion to previous patterns of engaging in the activity. Also has implications for loss of control.
- Interaction of Person-Affect-Cognition-Execution (I-PACE) model (Brand, Young, Laier, Wolfling, & Potenza, 2016)
  - Developed to understand the pathological use of internet facilities for specific purposes (e.g. gaming, gambling, pornography, shopping etc...)
  - Specific internet use disorders explained because of interactions between:
    - predisposing factors: a person's core characteristics leading to a greater vulnerability towards stress
      - Genetics, early childhood experiences (i.e. trauma, abuse, isolation, insecure attachment)
      - Psychopathology (e.g. social anxiety, ADHD), personality (e.g. neuroticism), social cognitions (e.g. perceived lack of social support)
      - Motives for use
    - moderating and mediating factors: affective and cognitive responses to stress
      - coping style: dysfunctional/impulsive coping strategies
      - Internet-related cognitive biases that generate expectancies about the internet game/site (e.g. 'This game is the only way I can experience pleasure and/or escape from reality')
      - Increased cue reactivity: heightened reactivity to stimuli that has a conditioned association with pleasure
      - Increased need for (external) mood regulation
      - Attentional biases

- all combined with reduced executive functioning.

*These ties may be strengthened through conditioning processes that arise through gratification as a reinforcer*

## Assessment

- Many self-reports scales available, but their use can be problematic given the debate around diagnostic criteria
  - A comparison of IGD psychometric assessment tools found that all IGD addiction indicators were not included, and a large variation in cut-off scores to distinguish between normal and pathological gaming (King et al., 2013)
- Structured clinical interview may be the best form of assessment in order to gauge the function and use of gaming.
  - It has been recommended that assessment of pathological use of digital media in young people include history taking, gauging the nature of the problems leading up to clinical attendance – and what normal use constitutes in that context (Rich, Tsappis, & Kavanaugh, 2017)

## Summary

- Official/Accepted criteria for diagnosis is currently lacking for IGD
  - However, consensus exists for symptoms of lack of control over use, and the use of gaming for 'escape' purposes are defining characteristics
- Common outcomes associated with IGD include decreased involvement in real-world activities, loneliness, depression, anxiety, and low self-esteem
- Common risk factors include low social competence and poor emotion regulation skills
- At this point, we can understand (based on what criteria possesses a consensus, known risk factors, and outcomes) that pathological gaming serves at least two functions
  - Emotion regulation
  - A (self-reinforcing) substitute for real-world social interaction
- Assessment of IGD should focus less on time spent gaming, with more emphasis on what function the problematic gaming behaviour may be serving

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