Mental health and video games

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What we would like to know

• Mental health disorders are a (another) global epidemic
• We have very limited ways of monitoring mental health and cognition once people leave the clinic or laboratory.
• Current methods include questionnaires, phone interviews, self-report, reports from carers.
• How can we gain regular access to information about the state of people’s brains around the world?
Many people play video games

• Over 2 billion people are ‘regular’ video game players
  • This includes ‘serious’ video games …
  • And also ‘casual games’…
Why do we (psychologists) care?

• Video games are repetitive, demanding, problem solving tasks
• They include social and strategic aspects
• **Millions of subjects**...
• ...engaging frequently & without coercion (or payment)
• Fine-grained data and metadata logged on central servers
• Player performance and behaviour within video games correlated with psychology and cognition...
• ... and also with external events
Correlation with psychology

Kokkinakis et al, CHB 2014

Kokkinakis et al, PLoS1., 2017
Correlation with external events

'Counterstrike Global Offensive' Maximum Daily Players

Date (regional lockdowns noted)
• Use games to change cognition
• ‘Brain training’
• ‘Gamification’
• Social interaction
• ‘Self medication’
Use games to monitor and understand mental health

• ‘Cognitive epidemiology’
• Behavioural monitoring
• Individual and population level
Challenges...

• Data access
  • How do we get hold of large video game datasets – especially as sharing does not benefit the game company?

• Data security and ethics
  • Ensure that user identities are not compromised, sensitive health information is protected and trust is maintained

• Linking lab-based and online findings
  • How do we know that information from games is linked to the real world human behaviour?
...and solutions

• Data access
  • Companies are surprisingly open to collaboration, allow online access to anonymised data
  • Also... personal connections! DC Labs and IGGI...

• Data security and ethics
  • Being careful, thoughtful and proactive
  • Advanced cryptographic techniques (developed at York CS) allow data analysis on encrypted datasets – a potential ‘game changer’.

• Linking lab-based and online findings
  • Past six months have seen a huge increase in the range and reliability of online experiments – now possible to perform tightly controlled testing online.
  • Accessing individual subjects (and especially clinical populations) is still challenging.
Summary

- Video games allow us to acquire psychometric performance data from hundreds of millions of people around the world on a longitudinal basis.

- Until now, people have focused on the ways that commercial video games might alter behaviour.

- The evidence on this issue is unclear. But targeted ‘game-like’ and digital experiences are powerful clinical tools.

- We can also use video games to study and monitor cognitive health and personality at scales ranging from individual subjects to global populations.
Thank you