2017-04

Just Gambling? Ethical Challenges Pertaining to Gambling Provision, Policy and Research

Abbott, Max; Banks, James; Belanger, Yale; Brown, Dan; Christensen, Darren; Hancock, Linda; Harrigan, Kevin; Johnson, Mark; Lund, Anna; Markham, Francis...

Presentation

FACTORS DISTINGUISHING PROBLEM GAMBLERS, PROBLEM VIDEO-GAMERS, AND DUAL PROBLEM GAMBLERS/VIDEO-GAMERS

James Sanders, PhD RPsych

Assistant Professor, Faculty of Health Sciences

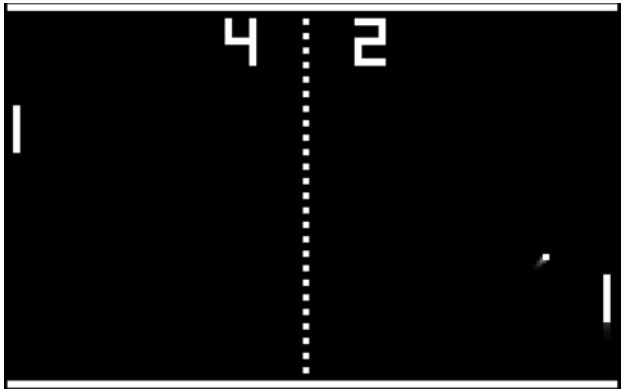
University of Lethbridge

Lethbridge, Alberta, Canada

Disclosure

- This research is supported by a grant for the Alberta Gambling Research Institute

Video games



- First commercially available games emerged in 1970s
- These games available on arcade games, gaming consoles, and home computers
- Arcade games more prominent

Video games

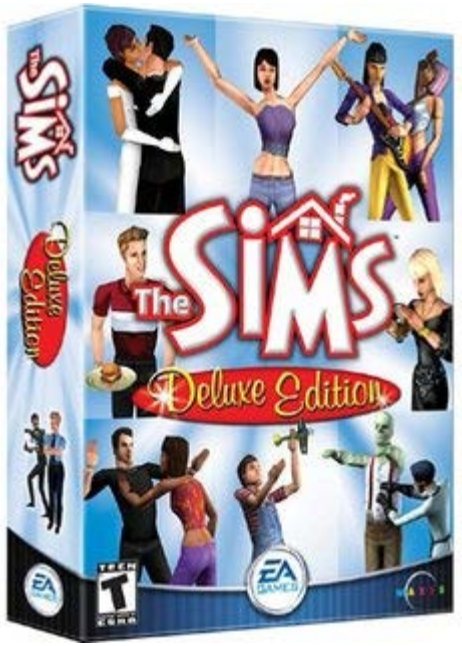
- By the 1980s-1990s game consoles and games on home computers improved in quality
- Some portable games were introduced
- Arcade games continued to offer a higher quality game experience

Video games

- Online-type games have been available since the 1970s but there was little demand without in-home internet access
- Some early online games involved directly connecting to another player via modem
- Later, game players could connect to dedicated servers which hosted many players at once
- Early online games were available on computers and later on consoles

Video games

- Traditionally, video games have been thought of as a male-dominated activity
- A number of games marketed toward women have been developed, including cooperative and story-driven games
- In Canada, nearly half of video game players are women



Video games

- Video games have expanded onto mobile phones and tablets
- Games can be readily downloaded and played
- Many games are offered free but involve in-app purchases
- Games are also embedded in social media

Problematic video game play

- First reports of "addiction" in the 1980s
- Debate in the research regarding terminology (excessive vs. problematic vs. addiction; computer games vs. video games vs. internet games)
- Criteria for Internet Gaming Disorder introduced in DSM-5 (2013)

Internet Gaming Disorder

- In Section III, as a condition that requires further study
- Non-Gambling gaming
- Criteria (5 or more of following in past 12 months)
  - Preoccupation with internet games
  - Withdrawal symptoms when internet gaming taken away
  - Increased tolerance
  - Unsuccessful attempts to control participation
  - Loss of interest in hobbies and entertainment as a result of internet games
  - Continued excessive use despite knowledge of psychosocial problems
  - Deceived others regarding amount of internet gaming
  - Use as escape or relief of negative mood
  - Jeopardized relationship and opportunities because of participation in internet games

Summary

- Advancing technology allows video game players to conveniently access and play video games
- Online access has expanded types of games played and how games are played
- "Video game addiction" has been a concern identified in research
- Some types of games may be more problematic than others
- Many who grew up in a "video game generation" are now adults

Video game play in Canada

- More than half of Canadian adults regularly play video games, with 48% of those being women (ESAC, 2013)
- Turner et al. (2012) assessed 2,832 adolescents aged 12 to 19 from a central-Canadian province using an in-class survey, where 9.4% were classified with problematic gaming behaviour
- To our knowledge, no prevalence studies of problematic video game play have been undertaken in Canada previously

Video game play in Canada

- 1,238 adults were contacted via online panel, with 44% (n = 542) reporting regular video game play. 93% of those (n = 506) completed the entire survey.
- The average age of video game players was 41.7 (*Range* = 18-88, *SD* = 14.3).
- Males accounted for 61% (n = 309) and females 39% (n = 197).
- Numerous genres (16) were identified, with the most commonly played being Facebook/Browser games (19.4%, n = 98).
- About half played primarily online (52.8%, n = 267).
- 3.1% of the entire sample (n = 38) met IGD criteria

Sanders et al. (submitted)

Video game play in Canada

- Forward stepwise binary logistic regression was used to identify predictors of IGD
  - Moderate classification accuracy (68%) was obtained
  - Moderate percentage of variance explained (Nagelkerke R Square = .36)
  - Predictors of IGD were as follows:
    - engaging in primarily *online* video game play
    - being employed less than full-time
    - early age of onset of video game play
    - being male
    - lower levels of education
    - esteem or competitive motives

Sanders et al. (submitted)

Relationship between problem gambling and gaming

- Previous research has explored the relationship between problem gambling and problem video/internet gaming
  - Delfabbro et al., 2009
    - VG play itself is unlikely to be a risk factor for pathological gambling
  - King, Ejova, & Delfabbro, 2012
    - VG playing associated with increased perception of control over chance-based gambling activities
  - Walther, Morgenstern, & Hanewinkel, 2012
    - Shared characteristics (male, low parental monitoring, and high impulsivity and ADHD) between problem gamblers and problematic computer gamers
  - Müller et al., 2014
    - Low conscientiousness and low extraversion distinguish IGD from pathological gamblers
  - Choi et al., 2014
    - IGD greater impulsivity overall than Gambling Disorder, but Gambling Disorder greater compulsivity than IGD
  - Forrest, King, & Delfabbro, 2016
    - Gambling and gaming frequency unassociated, age only predictor of gaming 'addiction' and gambling frequency
  - McBride & Derevensky, 2016
    - Adolescent gamblers more likely to play VG, and VG players more likely to gamble
    - Addicted VG more likely to gamble than social VG
    - Small sample of dual problem gamblers/addicted VG

Purpose

- People having over-involvement in problem gambling (PG) and problem video-gaming (PVG) appear to share many demographic, mental health, and personality characteristics.
- This research aims to better understand the similarities and differences between PG an PVG.
- Additionally, this study will evaluate another group, dual PG and PVG players, in comparison to PG or PVG.

Procedure

- Participants were recruited from a Canada-wide online panel. Online internet panels consist of thousands of individuals who are recruited to respond to survey requests for which they receive compensation (Göritz, 2007).
- To recruit participants, an e-mail solicitation was sent to online panelists 18 years and older with the question "Do you regularly gamble and/or play video games?"

Measures

- Demographics
- Gambling/game-play characteristics
- Problem and Pathological Gambling Measure (PPGM)
- Behavioural Addiction Measure – Video Games (BAM-VG)
- DSM-5 criteria for various disorders
- UPPS-P (impulsivity)
- Self-report statements of problems in related activities (sex/pornography, social media, other unrelated internet use)

Problem and Pathological Gambling Measure (PPGM)

- Assesses domains of 1) impaired control, and 2) significant negative consequences deriving from impaired control
- Comprehensively assesses range of potential harms deriving from gambling, and minimizes false positives and false negatives
  - requiring monthly or more gambling to be designated as a problem gambler
  - designating people with subclinical levels of symptomatology as problem gamblers if their expenditure and frequency of gambling is equivalent to unambiguously identified problem gamblers
- Cronbach alpha = .76 - .81 and one month test-retest reliability (*r* = .78) equivalent to CPGI, SOGS, and operationalizations of DSM criteria
- PPGM has better overall classification accuracy (kappa = .96) compared to either the CPGI (kappa = .56), DSM-IV (kappa = .68), or SOGS (kappa = .62) when compared to clinical assessment (Williams & Volberg, 2014).

Behavioural Addiction Measure – Video Games (BAM-VG)

- Developed based on PPGM (Sanders & Williams, 2016)
- Good internal consistency (Cronbach's alpha = 0.87) and retest reliability (tau b [462] = 0.73, $p < 0.01$)
- Criterion-related validity and construct validity demonstrated by significant correlations with: time spent playing, self-identification of video game problems, and scores on other instruments designed to assess video game addiction (DSM-5 IGD, IGD-20)
- Principal component analysis identified two components underlying the BAM-VG that roughly correspond with impaired control and significant negative consequences deriving from this impaired control

DSM-5 criteria

- Substance Use Disorder
- Major Depressive Disorder
- Generalized Anxiety Disorder
- Posttraumatic Stress Disorder
- Social Anxiety Disorder
- Panic Disorder
- Antisocial Personality Disorder

UPPS-P

- 20 item scale assessing impulsivity
- Good internal consistency (Cronbach α ranged from .70 to .84 for the various subscales) and strong retest reliability (.84 to .92) (Billieux, et al., 2012)
- Factorial validity suggests a hierarchical model with 2 higher order factors, or distinct 5 facets (Billieux, et al., 2012)
- External validity established with correlations with AUDIT, STAI, and BDI (Billieux, et al., 2012)
- The sum of the UPPS-P was used for analysis

Analysis

- Analyses were undertaken to answer the following research questions:
  1. What variables distinguish problem gamblers from problem video game players?
  2. What variables distinguish dual problem gamblers/video game players from those with one of problem gambling/video game playing?
- Univariate analysis included chi square and Mann Whitney U tests
- Multivariate analysis included Forward Stepwise Binary Logistic Regression (weighted)

Results

- 4,006 respondents completed the survey
- 3,942 were retained after cleaning (mean age 43.6, 50.5% female)
- The majority were married or cohabiting (n = 2,303, 58.9%)
- Educated sample with majority completing postsecondary program (n = 2,121, 54.2%)
- Median household income between $60,000-$69,999
- 78.5% of video game players gambled, and 70.7% of gamblers played video games. More participants were involved in both activities than not ($\chi^2(3,870) = 131.730$, $p = <.001$)
- 10.6% were classified PG (n = 417), 3.9% were PVG (n = 154), and 1.2% were concurrent problem gamblers and problem video game players (PG/PVG) (n = 49).

Research question #1

What variables distinguish problem gamblers from problem video game players?

Variables distinguishing PG from PVG		Demographics			
		None	PG	PVG	PG/PVG
		%	%	%	%
Sex	Male	48.6%	54.4%	51.9%	56.3%
	Female	51.4%	45.6%	48.1%	43.8%
Marital Status*	Never married	27.6%	***32.1%***	***48.7%***	38.8%
	Married	41.8%	***37.9%***	***26.0%***	30.6%
	Co-habiting	18.7%	***15.2%***	***17.5%***	22.4%
	Previously married	11.9%	***14.7%***	***7.8%***	8.2%
Education	Did not complete high school	3.6%	4.1%	2.6%	6.3%
	Completed high school	19.8%	22.3%	20.8%	12.5%
	Some university or college	21.1%	24.7%	36.4%	20.8%
	Completed university or	46.8%	42.0%	33.1%	50.0%
	Professional Degree, Masters,	8.7%	7.0%	7.1%	10.4%
Employment*	Not employed	32.7%	***32.2%***	***30.3%***	16.3%
	Full-time student	6.5%	***6.7%***	***17.1%***	16.3%
	Part-time employment	12.0%	***13.2%***	***18.4%***	10.2%
	Full-time employment	48.9%	***47.8%***	***34.2%***	57.1%

	Continuous variables (age & UPPS)							
	None		PG		PVG		PG/PVG	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age*	44.24	(16.07)	***42.11***	***(13.91)***	***36.38***	***(14.79)***	37.77	(13.91)
UPPS-P* (Impulsivity)	43.24	(7.96)	***48.79***	***(7.53)***	***46.51***	***(8.19)***	51.07	(8.16)

$* = p < 0.05$

Variables Distinguishing PG from PVG	DSM-5 Diagnoses			
	None	PG	PVG	PG/PVG
	%	%	%	%
Substance Use Disorder*	5.0%	***22.3%***	***13.0%***	28.6%
Major Depressive Disorder*	10.1%	***20.6%***	***29.9%***	30.6%
Generalized Anxiety Disorder	8.6%	25.7%	27.9%	26.5%
PTSD	7.0%	16.3%	18.2%	22.4%
Social Anxiety Disorder*	2.9%	***3.6%***	***9.7%***	6.1%
Panic Disorder	9.2%	24.7%	19.5%	28.6%
Antisocial Personality Disorder	2.0%	14.1%	8.4%	26.5%

$* = p < 0.05$

Variables Distinguishing PG from PVG	Other related problems (self-report)							
	None		PG		PVG		PG/PVG	
	n	%	n	%	n	%	n	%
Sex or pornography*	107	3.2%	***42***	***10.1%***	***25***	***16.2%***	8	16.3%
Social media (i.e. Facebook)	79	2.4%	38	9.1%	20	13.0%	8	16.3%
Other internet use (not gambling, video games, pornography, or social media)*	26	.8%	***20***	***4.8%***	***16***	***10.4%***	3	6.1%

$* = p < 0.05$

Multivariate differences predicting PVG (vs PG) group membership

Forward Stepwise Binary Logistic Regression (weighted)
(Nagelkerke R Square = 0.190)

Variable	beta	Odds Ratio	Wald	*p* Value
UPPS-P (Impulsivity)	-0.05	.951	20.418	<0.05
Age	-0.28	.973	15.529	<0.05
Problems with other Internet use	1.018	2.769	7.994	<0.05
Marital Status	-	-	7.827	<0.05
Antisocial Personality Disorder	-.821	.440	6.461	<0.05
Major Depressive Disorder	.532	1.702	6.190	<0.05
Substance Use Disorder	-.549	.577	5.470	<0.05
Social Anxiety Disorder	.864	2.373	4.722	<0.05

Research question #2

What variables distinguish dual problem gamblers/video game players from those with one of problem gambling/video game playing?

Variables distinguishing PG from PG/PVG		Demographics			
		None	PG	PVG	PG/PVG
		%	%	%	%
Sex	Male	48.6%	54.4%	51.9%	56.3%
	Female	51.4%	45.6%	48.1%	43.8%
Marital Status	Never married	27.6%	32.1%	48.7%	38.8%
	Married	41.8%	37.9%	26.0%	30.6%
	Co-habiting	18.7%	15.2%	17.5%	22.4%
	Previously married	11.9%	14.7%	7.8%	8.2%
Education	Did not complete high school	3.6%	4.1%	2.6%	6.3%
	Completed high school	19.8%	22.3%	20.8%	12.5%
	Some university or college	21.1%	24.7%	36.4%	20.8%
	Completed university or	46.8%	42.0%	33.1%	50.0%
	Professional Degree, Masters,	8.7%	7.0%	7.1%	10.4%
Employment*	Not employed	32.7%	***32.2%***	30.3%	***16.3%***
	Full-time student	6.5%	***6.7%***	17.1%	***16.3%***
	Part-time employment	12.0%	***13.2%***	18.4%	***10.2%***
	Full-time employment	48.9%	***47.8%***	34.2%	***57.1%***

	Continuous variables (age & UPPS)							
	None		PG		PVG		PG/PVG	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age*	44.24	(16.07)	***42.11***	***(13.91)***	36.38	(14.79)	***37.77***	***(13.91)***
UPPS-P (Impulsivity)	43.24	(7.96)	48.79	(7.53)	46.51	(8.19)	51.07	(8.16)

$* = p < 0.05$

Variables Distinguishing PG from PG/PVG	DSM-5 Diagnoses			
	None	PG	PVG	PG/PVG
	%	%	%	%
Substance Use Disorder	5.0%	22.3%	13.0%	28.6%
Major Depressive Disorder	10.1%	20.6%	29.9%	30.6%
Generalized Anxiety Disorder	8.6%	25.7%	27.9%	26.5%
PTSD	7.0%	16.3%	18.2%	22.4%
Social Anxiety Disorder	2.9%	3.6%	9.7%	6.1%
Panic Disorder	9.2%	24.7%	19.5%	28.6%
Antisocial Personality Disorder*	2.0%	***14.1%***	8.4%	***26.5%***

$* = p < 0.05$

Variables Distinguishing PG from PG/PVG	Other related problems (self-report)			
	None	PG	PVG	PG/PVG
	%	%	%	%
Sex or pornography	3.2%	10.1%	16.2%	16.3%
Social media (i.e. Facebook)	2.4%	9.1%	13.0%	16.3%
Other internet use (not gambling, video games, pornography, or social media)	.8%	4.8%	10.4%	6.1%

$* = p < 0.05$

Variables distinguishing PVG from PG/PVG		Demographics			
		None	PG	PVG	PG/PVG
		%	%	%	%
Sex	Male	48.6%	54.4%	51.9%	56.3%
	Female	51.4%	45.6%	48.1%	43.8%
Marital Status	Never married	27.6%	32.1%	48.7%	38.8%
	Married	41.8%	37.9%	26.0%	30.6%
	Co-habiting	18.7%	15.2%	17.5%	22.4%
	Previously married	11.9%	14.7%	7.8%	8.2%
Education	Did not complete high school	3.6%	4.1%	2.6%	6.3%
	Completed high school	19.8%	22.3%	20.8%	12.5%
	Some university or college	21.1%	24.7%	36.4%	20.8%
	Completed university or	46.8%	42.0%	33.1%	50.0%
	Professional Degree, Masters,	8.7%	7.0%	7.1%	10.4%
Employment	Not employed	32.7%	32.2%	30.3%	16.3%
	Full-time student	6.5%	6.7%	17.1%	16.3%
	Part-time employment	12.0%	13.2%	18.4%	10.2%
	Full-time employment	48.9%	47.8%	34.2%	57.1%

	Continuous variables (age & UPPS)							
	None		PG		PVG		PG/PVG	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	44.24	(16.07)	42.11	(13.91)	36.38	(14.79)	37.77	(13.91)
UPPS-P* (Impulsivity)	43.24	(7.96)	48.79	(7.53)	***46.51***	***(8.19)***	***51.07***	***(8.16)***

$* = p < 0.05$

Variables Distinguishing PVG from PG/PVG	DSM-5 Diagnoses			
	None	PG	PVG	PG/PVG
	%	%	%	%
Substance Use Disorder*	5.0%	22.3%	***13.0%***	***28.6%***
Major Depressive Disorder	10.1%	20.6%	29.9%	30.6%
Generalized Anxiety Disorder	8.6%	25.7%	27.9%	26.5%
PTSD	7.0%	16.3%	18.2%	22.4%
Social Anxiety Disorder	2.9%	3.6%	9.7%	6.1%
Panic Disorder	9.2%	24.7%	19.5%	28.6%
Antisocial Personality Disorder*	2.0%	14.1%	***8.4%***	***26.5%***

$* = p < 0.05$

Variables Distinguishing PVG from PG/PVG	Other related problems (self-report)			
	None	PG	PVG	PG/PVG
	%	%	%	%
Sex or pornography	3.2%	10.1%	16.2%	16.3%
Social media (i.e. Facebook)	2.4%	9.1%	13.0%	16.3%
Other internet use (not gambling, video games, pornography, or social media)	.8%	4.8%	10.4%	6.1%

$* = p < 0.05$

Multivariate differences predicting Dual PG/PVG (vs either PG or PVG) group membership

Forward Stepwise Binary Logistic Regression (weighted)
(Nagelkerke R Square = 0.178)

Variable	beta	Odds Ratio	Wald	*p* Value
UPPS-P (Impulsivity)	.064	1.066	42.560	<0.05
Employment Status	-	-	40.355	<0.05
Problems with Social Media	.863	2.370	13.443	<0.05
Generalized Anxiety Disorder	-.587	.556	10.565	<0.05
Antisocial Personality Disorder	.559	1.749	8.461	<0.05
PTSD	.504	1.655	7.105	<0.05

Discussion – PG vs PVG

- PG predicted impulsivity, antisocial personality disorder, and substance use disorder
- PVG predicted lower age, depression, social anxiety, and problems with internet use. Problems with sex/pornography were identified in univariate analyses
- These distinctions between PG and PVG/IGD seem consistent with previous research (Choi et al., 2014; Müller et al., 2014)

Discussion – Dual PG/PVG

- Compared to PG, Dual PG/PVG were younger and presented with higher rates of Antisocial Personality Disorder
- Compared to PVG, Dual PG/PVG had greater impulsivity and higher rates of Antisocial Personality Disorder and Substance Use Disorder
- Multivariate analysis suggested that compared with PG or PVG, Dual PG/PVG had greater impulsivity and higher rates of Antisocial Personality Disorder, PTSD, and problems with social media
- These results suggest that antisociality and, to a lesser extent, impulsivity and SUD may be associated with the presence of dual behavioural addictions
- Previous research has identified Problem Gambling as "generality of deviance", a co-occurrence of risky and antisocial behaviour (Mishra et al., 2017)

Limitations

- No data available on panelists who were not gamblers or game players
- Online panels
  - Tend to oversample for pathology
  - Access to internet required

References

- Billieux, J., Rochat, L., Ceschi, G., Carré, A., Offerlin-Meyer, I., Defeldre, A. C., ... & Van der Linden, M. (2012). Validation of a short French version of the UPPS-P Impulsive Behavior Scale. *Comprehensive Psychiatry*, *53*(5), 609-615.
- Choi, S.W., Kim, H.S., Kim, G.Y., Jeon, Y., Park, S.M., Lee, J.Y. et al. (2014). Similarities and differences among internet gaming disorder, gambling disorder and alcohol use disorder: A focus on impulsivity and compulsivity. *Journal of Behavioral Addictions*, *3*(4), 246-253.
- Delfabbro, P., King, D., Lambos, C., & Puglies, S. (2009). Is video-game playing a risk factor for pathological gambling in Australian adolescents? *Journal of Gambling Studies, 25*, 391-405.
- Forrest, C.J., King, D.L., & Delfabbro, P.H. (2016). The gambling preferences and behaviors of a community sample of Australian regular video game players. *Journal of Gambling Studies, 32*, 409-420.
- King, D.L., Ejova, A., & Delfabbro, P.H. (2012). Illusory control, gambling, and video gaming: An investigation of regular gamblers and video game players. *Journal of Gambling Studies, 28*, 421-435.

References

- McBride, J. & Derevensky, J. (2016). Gambling and video game playing among youth. *Journal of Gambling Issues, 34*, 156-178.
- Mishra, S., Lalumiere, M.L., & Williams, R.J. (2017). Gambling, risk-taking, and antisocial behavior: A replication study supporting the Generality of Deviance. *Journal of Gambling Studies, 33*(1), 15-36.
- Müller, K.W., Beutel, M.E., Egloff, B., & Wolfling, K. (2014). Investigating risk factors for internet gaming disorder: A comparison of patients with addictive gaming, pathological gamblers and healthy controls regarding the Big Five personality traits. *European Addiction Research, 20*, 129-136.
- Sanders, J.L. & Williams, R.J. (2016). Reliability and Validity of the Behavioural Addiction Measure for Video Gaming (BAM-VG). *Cyberpsychology, Behavior, and Social Networking, 19*(1), 43-48.
- Walther, B., Morgenstern, M., & Hanewinkel, R. (2012). Co-occurrence of addictive behaviours: Personality factors related to substance use, gambling, and computer gaming. *European Addiction Research, 18*, 167-174.
- Williams, R.J., & Volberg, R.A. (2014). Classification Accuracy of Four Problem Gambling Assessment Instruments. *International Gambling Studies, 14* (1), 15-28.