

## Background

Many similarities exist between gambling and financial speculation: (1) financial risk taking — speculators tend to be heavy gamblers and are more likely to be problem gamblers (Arthur, Delfabbro, & Williams 2015); (2) both speculators and gamblers report similar motivations for gambling/speculation (Arthur & Delfabbro, 2017); and (3) both fall prey to gambling fallacies (Delfabbro, 2004; Stockl et al., 2015).

The aim of the present study is to address whether gamblers and financial speculators succumb to the same gambling fallacies. Using the Gambling Fallacies Measure (GFM), the present study investigates the similarities and differences in GFM total scores and GFM fallacy-specific scores between speculating and non-speculating gamblers.

## Research Questions

1. Is there a difference in the level of gambling fallacies, as measured by the GFM, between traditional non-speculating gamblers and gamblers who engage in financial speculation?
2. Do gamblers who engage in financial speculation endorse different gambling fallacies compared to traditional non-speculating gamblers?
3. Assuming gamblers who engage in financial speculation are most similar to non-speculating skill-based gamblers, do these groups differ in the gambling fallacies they endorse?

## Methods

### Data

The data used was collected during the *Baseline online panel survey* that was administered as part of the *Gambling and Problem Gambling in Canada: A National Study*. The sample included 10199 participants across Canada; the *Baseline online panel survey* was targeted toward gamblers and therefore contains ~ 7 times more problem gamblers (compared to the general population).

### GFM

The GFM assesses individual's susceptibility to various gambling fallacies, including: the hot-hand fallacy (**HH**), Monte-Carlo fallacy (**MC**), illusion of control (**IOC**), the belief that luck is dispositional (**BLD**), insensitivity to sample size (**ISS**), and base-rate neglect (**BRN**).

The GFM consists of 10 multiple choice questions, each with only one correct answer. Higher scores on the GFM reflect greater resistance to gambling fallacies. The GFM does not include any non-fallacious motivations, attitudes, biases, or problem gambling behaviours, therefore it is presently the most valid and reliable measure to assess gambling fallacies (Leonard et al., 2015).

## Methods (continued)

### Analysis

Participants were divided into two groups: speculating (**SP**), and non-speculating (**NSP**) gamblers. The NSP group was further divided into three additional groups based on their preferred type of gambling games: chance-based, skill-based, and both (chance- and skill-based games).

The GFM was reverse-coded so that higher scores represented higher susceptibility to gambling fallacies. The GFM was also divided into individual fallacies.

A t-test was conducted to determine whether SP and NSP gamblers differed in their overall level of gambling fallacies. An additional t-test and two chi-square tests were conducted to determine whether SP and NSP gamblers endorse different gambling fallacies. A one-way ANOVA and two additional chi-square tests were conducted to evaluate the relationship between type of gambler and the gambling fallacies they endorse. Additional post-hoc analyses: the Bonferroni correction and the Dunnett's C test were conducted to assess pairwise comparisons within the chi-square tests and ANOVA.

## Results

Table 1

*t-Test comparing non-speculating and speculating gamblers on their level of gambling fallacies*

Variable	SP		NSP		<i>t</i>	95% CI	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
GFM Score	4.91	2.47	3.47	1.68	-19.63	-1.58, -1.29	0.00

Table 2

*t-Test & Chi-Square tests comparing non-speculating & speculating gamblers endorsement of different gambling fallacies*

Gambling fallacy	SP		NSP		<i>t</i>	95% CI	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
HH	0.63	0.84	0.15	0.43	-19.64	-0.53, -0.44	0.00
IOC	1.39	1.21	0.59	0.86	-22.05	-0.87, -0.73	0.00
BLD	0.95	0.62	1.17	0.51	11.43	0.18, 0.25	0.00
MC	1.00	0.96	0.61	0.82	-13.63	-0.45, -0.34	0.00
Gambling Fallacy	SP		NSP		$\chi^2$	$\phi$	<i>p</i>
ISS							
Endorsed	897 (74.32%)		7939 (89.74%)		237.20	-0.15	0.00
Rejected	310 (25.68%)		908 (10.26%)				
BRN							
Endorsed	967 (80.12%)		8383 (94.76%)		349.54	-0.19	0.00
Rejected	240 (19.88%)		464 (5.24%)				

## Results (continued)

Table 3

*One-way ANOVA & Chi-Square tests comparing type of gambler on their endorsement of different gambling fallacies*

Gambling Fallacy	Chance		Skill		Both		SP		<i>F</i>	$\eta^2$	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
HH	0.12 <sup>cd</sup>	0.37	0.17 <sup>d</sup>	0.43	0.25 <sup>ad</sup>	0.58	0.63 <sup>abc</sup>	0.84	234.91	0.07	0.00
IOC	0.52 <sup>cd</sup>	0.80	0.72 <sup>d</sup>	0.93	0.84 <sup>ad</sup>	1.02	1.39 <sup>abc</sup>	1.21	261.33	0.06	0.00
BLD	1.19 <sup>cd</sup>	0.50	1.00	0.42	1.09 <sup>ad</sup>	0.54	0.95 <sup>ac</sup>	0.62	77.10	0.01	0.00
MC	0.57 <sup>cd</sup>	0.79	0.64	0.92	0.73 <sup>ad</sup>	0.92	1.00 <sup>ac</sup>	0.96	79.75	0.02	0.00
Gambling Fallacy	Chance		Skill		Both		SP		$\chi^2$	<i>V</i>	<i>p</i>
ISS											
Endorsed	6290 (91.82%) <sup>bcd</sup>		34 (72.34%) <sup>a</sup>		1613 (82.80%) <sup>ad</sup>		897 (74.31%) <sup>ac</sup>		366.44	0.91	0.00
Rejected	560 (8.18%) <sup>bcd</sup>		13 (27.66%) <sup>a</sup>		335 (17.20%) <sup>ad</sup>		310 (25.68%) <sup>ac</sup>				
BRN											
Endorsed	6627 (96.75%) <sup>bcd</sup>		33 (70.21%) <sup>ac</sup>		1722 (88.40%) <sup>abd</sup>		967 (80.11%) <sup>ac</sup>		556.63	0.24	0.00
Rejected	223 (3.26%) <sup>bcd</sup>		14 (29.79%) <sup>ac</sup>		226 (11.60%) <sup>abd</sup>		240 (19.88%) <sup>ac</sup>				

## Discussion

1. SP gamblers endorse a higher level of gambling fallacies compared to NSP gamblers.
2. SP and NSP gamblers endorse different gambling fallacies: SP gamblers are more likely to endorse the HH, MC, and IOC fallacies, while NSP gamblers are more likely to endorse BLD, ISS, and BRN.
3. SP gamblers are more likely to endorse HH, MC, and IOC, compared to chance- & skill-based gamblers and 'both' groups. Chance-based NSP gamblers were more likely to endorse the BLD, ISS, and BRN compared to SP, skill-based, & 'both' groups.

This suggests: (1) speculating and non-speculating gamblers differ in their endorsement of specific and overall level of gambling fallacies; and (2) different types of gamblers differ in which specific fallacies they endorse. Recognizing gambler's and speculator's endorsements of gambling fallacies can aid in the identification of problem gambling and speculative activities.

## References

- Arthur, J.N., Delfabbro, P., & Williams, R.J. (2015). Is there a relationship between participation gambling activities and participation in high-risk stock trading?. *Journal of Gambling Business & Economics*, 9(3).
- Arthur, J.N., & Delfabbro, P. (2017). Day traders in South Australia: Similarities and differences with traditional gamblers. *Journal of gambling studies*, 33, 855-866.
- Delfabbro, P. (2004). The stubborn logic of regular gamblers: Obstacles and dilemmas in cognitive gambling research. *Journal of gambling studies*, 20, 1-21.
- Stock, T., Huber, J., Kirchner, M., & Linder, F. (2015). Hot hand and gambler's fallacy in teams: Evidence from investment experiments. *Journal of Economic Behaviour & Organization*, 117, 327-339.
- Leonard, C. A., Williams, R. J., Vokey, J. (2015). Gambling fallacies: what are they and how are they best measured?.

Arthur, J. N., Delfabbro, P., & Williams, R. J. (2015). Is there a relationship between participation in gambling activities and participation in high-risk stock trading?. *Journal of Gambling Business & Economics*, 9(3).