

Factor structure and validation of the Japanese version of the Gambling Symptom Assessment Scale (GSAS-J)

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Abstract

The Gambling Symptom Assessment Scale (GSAS) is a 12-item self-rated measure designed to assess gambling symptoms. This study was designed to translate the GSAS into Japanese and to examine the factor structure and validity of the Japanese version of the GSAS (GSAS-J) for a Japanese sample population. We examined the measurement invariance in the GSAS-J between a probable disordered and a non-disordered gambling sample. Seven hundred and seven participants (380 men, 327 women; mean age = 48.41, $SD = 10.79$) living in Japan were recruited online and included in the analyses. Confirmatory factor analysis results indicated that the GSAS-J factor structure (one-factor structure model) was appropriate for the data ($\chi^2(48) = 195.49$, $p < .05$; CFI = .927; RMSEA = .066; SRMR = .036). Results of multi-group confirmatory factor analysis indicated that the GSAS-J demonstrated strong factorial invariance between probable disordered gamblers and non-disordered gamblers. The Cronbach α coefficient was .96 for the total scale. Good concurrent validity was found for the GSAS-J in relation with other variables: the Kruskal-Wallis H test showed severe and extreme gamblers spent more days and much more money than those of moderate or mild gamblers, and the GSAS-J was significantly correlated with South Oaks Gambling Screen ($r = .57$), Gambling Related Cognitions Scale ($r = .71$), and Gambling Urge Scale ($r = .72$). Furthermore, t -test results indicated significant gender differences in GSAS-J scores. These results indicate GSAS-J is a valid measure for assessing gambling symptoms in Japanese sample populations.

Keywords: gambling, scale, confirmatory factor analysis, validity, internal consistency

Résumé

La Gambling Symptom Assessment Scale (GSAS) (échelle d'évaluation des symptômes du jeu pathologique) est une mesure d'auto-évaluation en 12 points, conçue pour évaluer les symptômes du jeu. Cette étude visait à traduire le GSAS en japonais et à examiner la structure factorielle et la validité de la version japonaise du

GSAS (GSAS-J) pour un échantillon de population japonaise. Nous avons examiné l'invariance des mesures du GSAS-J entre un échantillon de jeu problématique probable et un échantillon de jeu non problématique. Sept-cent-sept participants (380 hommes, 327 femmes; âge moyen = 48,41, $SD = 10,79$) vivant au Japon ont été recrutés en ligne et inclus dans les analyses. Les résultats de l'analyse factorielle confirmatoire ont indiqué que la structure factorielle du GSAS-J (modèle de structure à un facteur) était appropriée pour les données ($\chi^2(48) = 195,49$, $p < 0,05$; CFI = 0,927; RMSEA = 0,066; SRMR = 0,036). Les résultats de l'analyse factorielle confirmatoire multi-groupes ont indiqué que le GSAS-J démontrait une forte invariance factorielle entre les joueurs probablement pathologiques et les joueurs non pathologiques. Le coefficient de Cronbach α était de 0,96 pour l'échelle totale. Une bonne validité convergente a été trouvée pour le GSAS-J en fonction de relation avec d'autres variables: Test Kruskal-Wallis H – le groupe de joueurs montant de graves et à très graves symptômes du jeu a passé plus de jours et dépensé beaucoup plus d'argent que les joueurs des groupes ayant des symptômes modérés ou légers; analyses de corrélation – South Oaks Gambling Screen ($r = 0,57$), échelle des cognitions liées au jeu (Gambling Related Cognitions Scale) ($r = 0,71$) et échelle de jeu compulsif ($r = 0,72$). En outre, les résultats du *test de Student* indiquaient des différences significatives entre les sexes dans les scores GSAS-J. Ces résultats indiquent que le GSAS-J est une mesure valable pour évaluer les symptômes du jeu dans les échantillons de la population japonaise.

Introduction

The lifetime prevalence of gambling disorder (previously designated as pathological gambling) in people who speak English and other European languages has thus far been reported as 0.8–1.2% (Stucki & Rihs-Middel, 2007). In Japan, although no epidemiological research has been reported, non-epidemiological research for a community sample revealed that approximately 8.0% of participants were classifiable as probably maintaining a gambling disorder (Kato & Goto, 2017). Sato (2008) reported that many patients with gambling disorder in Japan received no medical care or psychological support. Moreover, the people and their families must confront gambling-related difficulties such as financial, legal, and occupational hardships. Insufficient treatment facilities exist for such patients in Japan. Therefore many of these gamblers are unable to receive treatment (Moriyama, 2008).

Furthermore, few reports have described studies of psychological treatment for gambling disorder patients in Japan. In consideration of the current situation in Japan and to support these patients in the country, a need exists for more research into gambling disorder using clinical trials and observational studies. Therefore, a valid patient-reported questionnaire must be made available to assess gambling

symptoms as a necessary preliminary step toward any study, and particularly for cross-sectional and correlative studies.

For non-clinical studies, the Gambling Symptom Assessment Scale (GSAS; Kim, Grant, Potenza, Blanco, & Hollandar, 2009) has been used recently as an outcome measure for people with gambling-related difficulties. It has also been used in clinical studies for gambling disorders. In two publicly available study protocols of a psychological treatment program for disordered gambling (Merkouris et al., 2017; Thomas et al., 2015), the GSAS was used as the primary outcome measure. The GSAS is a 12-item self-rated scale designed to assess gambling symptoms: urges, thoughts, gambling behavior, excitement, distress, and personal difficulties. The GSAS is a valid tool as it shows a significant correlation ($r = .51$) with the pathological gambling adaptation version of the Yale-Brown Obsessive-Compulsive Scale (Pallanti, DeCaria, Grant, Urpe, & Hollander, 2005) and holds internal consistency (Cronbach's $\alpha = .869$). In Japan, although measures of gambling-related variables have been developed, the concepts measured, have been limited to specific domains, such as gambling urges (Tanaka et al., 2017) and gambling related cognition (Yokomitsu, Takahashi, Kanazawa, & Sakano, 2015). Furthermore, the GSAS was developed for Koreans (Kim et al., 2005) and also applied to sexual symptoms (the Sexual Symptom Assessment Scale; Raymond, Lloyd, Miner, & Kim, 2007), suggesting that it is globally useful and adaptable to various related investigations.

Given that the use of the GSAS has been crucially important as a measure of gambling symptoms in clinical and observational studies, validating this scale is consequently important to assist researchers and clinicians in assessing gambling symptom severity and changes in those symptoms during treatment. Adaptation of a Japanese version of the GSAS (GSAS-J) has been useful in evaluating gambling disorder prevention and treatment effects. Such a tool could also be used for future research in Japan and assessment of gambling treatments. Furthermore, validation of the GSAS-J can facilitate comparative studies targeted at English-speaking or Korean-speaking populations.

Therefore, the current study examines the factor structure and validity of the GSAS-J in a sample Japanese population obtained online, and investigates measurement invariance in the GSAS-J between a probable disordered and a non-disordered gambling sample. We hypothesized that the GSAS-J had a one-factor model. To validate the GSAS-J, we used the Kruskal-Wallis H test to compare gambling behavior scores among four groups (GSAS-J mild symptom group, GSAS-J moderate symptom group, GRCS-J severe symptom group, and GRCS-J extreme symptom group). Then we calculated the Pearson's product-moment correlation coefficients between the GSAS-J and the other gambling variables. Results of an earlier study (Kim et al., 2009) suggest that we might find significant differences in gambling behaviors (number of days and amounts of money used in the prior month) among a GSAS-J mild symptom group, moderate symptom group, severe symptom group, and extreme symptom group. In addition, earlier studies suggested that individuals who had more severe gambling symptoms tended to have higher SOGS (Kim et al., 2009),

GRCS (Yokomitsu et al., 2015), and GUS (Tanaka et al., 2017) scores. We expected to find positive moderate associations between the GSAS-J and the South Oaks Gambling Screen-Modified Japanese version (SOGS-J; Saito, 1996) because the SOGS-J mainly measured gambling-related difficulties such as debt load, chasing, lying, and negative consequences. We also anticipated finding positive strong associations between the GSAS-J and the Japanese version of the Gambling Related Cognitions Scale (GRCS-J) or the Japanese version of the Gambling Urge Scale (GUS-J).

Method

This study was conducted in accordance with the COSMIN checklist (Mokkink, et al., 2010), following detailed guidelines of the preferred reporting style for the development of patient-reported outcome measures (de Vet, Terwee, Mokkink, & Knol, 2011).

Participants

One thousand Japanese residents aged 20 and older were recruited during November 10–14, 2017 through online survey panels of a major Japanese Internet survey company (Rakuten Research, Inc., Tokyo, Japan). From these recruited individuals, 268 were excluded because they had no gambling participation during the prior 12 months. Data of 707 participants with no missing values were used for final data analyses (response rate = 96.6% (707 / 732)).

Procedure

A website was created for this online study. Participants who registered with the Internet survey panels were recruited to participate in an online study presented as “behavior and cognition about gambling in daily life.” Before research participation, each potential participant interested in this online advertisement was given an explanation on the web screen to support informed consent for study participation. The explanation emphasized voluntary participation in the study. Completion of the Internet survey was regarded as consent to participate in the research because the online survey was anonymous. For this study, obtaining a large sample of patients with gambling disorder at treatment facilities would be difficult because such persons do not receive medical care or psychological treatment in Japan (Sato, 2008). Therefore, an online survey was determined to be beneficial for recruiting numerous participants to ensure an adequate sample size. Earlier studies suggest that online surveys have comparable validity to traditional data sampling methods (Gosling, Vazire, Srivastava, & John, 2004).

Measures

Demographics. Participants were asked questions related to gender, age, education level, annual income, and marital status.

Gambling behavior in the previous month. Participants were requested to report the number of days they had gambled during the prior month (“How many days did you gamble in the prior month?”) and the amount of money they had spent on gambling (“How much did you spend on gambling during the prior month? You need not give data about the income or expenditures related to gambling but on money that you used.”)

Japanese version of the Gambling Symptom Assessment Scale (GSAS-J; see Appendix). The GSAS (Kim et al., 2009) is a 12-item self-rated scale designed for broad assessment of gambling symptoms during the prior week: urges, thoughts, gambling behavior, excitement, distress, and personal trouble. Translation for this study was conducted in accordance with the ISPOR task force (Wild et al., 2005). First, forward translation from the source language into Japanese was performed independently by two authors (KY and EK). A professional English translator who was English/Japanese bilingual blind to the original GSAS then translated the provisional GSAS-J back into English. The two English versions of the GSAS (original and back-translated versions) were reconciled by KY and EK. Discrepancies between these English versions of the GSAS were slight. Subsequently, these versions were discussed until consensus was achieved. The original author (SWK) evaluated the finalized English version of the GSAS-J and confirmed that the original meaning of each item, instruction, and response were maintained throughout the translation procedure. As with the original GSAS (Kim et al., 2009), participants responded using a 5-point Likert scale to indicate the extent to which they agreed with the values expressed in each item during the past week. Higher scores indicated severer gambling symptoms: 8–20, mild gambling symptoms; 21–30, moderate gambling symptoms; 31–40, severe gambling symptoms; 41 or more, extreme gambling symptoms (classification based on Kim et al., 2009).

The South Oaks Gambling Screen – Modified Japanese version (SOGS-J; Saito, 1996). The South Oaks Gambling Screen (SOGS; Lesieur and Blume, 1987) is a 20-item self-reported measure that assesses gambling-related difficulties: (1) debt burden, (2) chasing, (3) lying, (4) negative consequences from gambling, and (5) interpersonal trouble. The SOGS produces a score of 0–20. This study assessed gambling-related difficulties for the prior year. A score of 5 or more indicated probable disordered gamblers. Cronbach α in this study was high ($\alpha = 0.80$).

Japanese version of the Gambling Related Cognitions Scale (GRCS-J; Yokomitsu et al., 2015). The GRCS (Raylu & Oei, 2004a) assesses gambling-related cognition. The GRCS-J is a 23-item questionnaire designed to measure gambling-related cognition. As with the original GRCS, participants responded using a 7-point Likert scale to indicate the extent to which they agreed with the values expressed in each item. Higher scores indicated a higher number of cognitive distortions. The overall GRCS-J has good internal consistency ($\alpha = 0.94$) and good convergent validity (correlation coefficient with the SOGS-J: $r = .61$; Yokomitsu et al., 2015). In this study, the scale total demonstrated high internal consistency ($\alpha = 0.97$).

Japanese version of the Gambling Urge Scale (GUS-J; Tanaka et al., 2017). The GUS (Raylu & Oei, 2004b) assesses an individual's gambling urges. The GUS-J is a 6-item questionnaire designed to measure such urges. As with the original GUS, participants responded using a 7-point Likert scale to indicate the extent to which they agreed with the statements. Higher scores indicated stronger gambling urges. The GUS-J has good internal consistency ($\alpha = 0.88$) and good convergent validity (correlation coefficient with the SOGS-J: $r = .55$; Tanaka et al., 2017). Results of this study suggest that GUS-J holds high internal consistency ($\alpha = 0.94$).

Statistical Analysis

Analyses were conducted using software (IBM SPSS Statistics package 24.0; R Core Team). Descriptive statistics was presented as means and standard deviations for each variable. A confirmatory factor analysis was used to confirm the factor solutions of the GSAS-J. We hypothesized that the GSAS-J had a one-factor model. Because the GSAS-J items have a 5-point Likert structure (an ordinal, categorical scale), weighted least squares mean-variance (WLSMV) estimator was used. We used four fit indices (chi-square (χ^2)), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR)). We used a “lavaan” package for conducting the confirmatory factory analysis. In addition, a multi-group confirmatory factor analysis was applied to ascertain the measurement invariance of the GSAS-J scores between a probable disordered ($5 \geq$ SOGS-J) and a non-disordered gambling sample ($5 \leq$ SOGS-J). We constructed the following five restrictive models: where (1) all parameters were free (model 1, configural invariance); (2) loadings were invariant (model 2, metric invariance); (3) loadings and intercepts were invariant (model 3, scalar invariance); (4) loadings, intercepts, and residuals were invariant (model 4, measurement error variance invariance); and (5) loadings, intercepts, residuals, and factor means were invariant (model 5, factor variance invariance). For multi-group confirmatory factor analysis, we used a difference of less than .01 in the Δ CFI index (Cheung & Rensvold, 2002) as the adoption criterion for the model. Cronbach α was also used to assess the internal consistency of the GSAS-J. The concurrent validity of the GSAS-J was analyzed using the Kruskal-Wallis H test to compare gambling behaviors (number of days and amount of money in the prior month) among four groups (classification based on Kim et al. (2009): the GSAS-J mild, moderate, severe and extreme symptom groups), and calculated the Pearson's product-moment correlation coefficients between the GSAS-J and the other gambling variables (SOGS-J, GRCS-J, and GUS-J). Student t-tests were applied to compare gender differences in gambling symptoms. We used complete data in this study and did not impute missing values. For all tests, significance (two-tailed) was inferred for $p \leq .05$.

Results

Demographic characteristics and gambling symptoms

Table 1 presents demographic data. Table 2 shows participant gambling behaviors. Of the 707 participants, 53.7% ($n = 380$) were men and 46.3% ($n = 327$) were women.

Table 1
Participant demographics (n = 707)

Category	n (%)
Sex	
Males	380 (53.7%)
Females	327 (46.3%)
Age	
20–29	133 (14.7%)
30–39	123 (17.4%)
40–49	199 (28.1%)
50–59	232 (32.8%)
60–69	120 (17.0%)
Occupation	
Business manager/administrator	146 (16.5%)
Office worker (managerial level job)	172 (10.2%)
Office worker (clerical job)	144 (20.4%)
Office worker (technical job)	159 (18.3%)
Office worker (selling profession)	146 (16.5%)
Office worker (manufacturing/labor)	125 (13.5%)
Office worker (service job)	155 (17.8%)
Freelance profession/specialist	152 (17.4%)
Self-employed business	137 (15.2%)
Student	142 (10.3%)
Full-time homemaker	184 (11.9%)
Unemployed/retirement	168 (19.6%)
Other	117 (12.4%)
Education	
Elementary and junior high school	119 (12.7%)
High school (equivalent test)	171 (24.2%)
Two-year and career college	143 (20.2%)
Four-year college	345 (48.8%)
Graduate school	129 (14.1%)
Annual income	
< 1,000,000 JPY	124 (17.5%)
1,000,000–1,999,999	158 (18.2%)
2,000,000–2,999,999	164 (19.1%)
3,000,000–3,999,999	178 (11.0%)
4,000,000–4,999,999	180 (11.3%)
5,000,000–5,999,999	174 (10.5%)
6,000,000–6,999,999	162 (18.8%)
7,000,000–7,999,999	128 (14.0%)
8,000,000–8,999,999	144 (16.2%)
9,000,000–9,999,999	120 (12.8%)
>= 10,000,000	175 (10.6%)
Family status (multiple answers allowed)	
Living alone	170 (24.0%)
Spouse	407 (57.6%)
Mother or father	127 (18.0%)
Child	246 (34.8%)
Grandmother or grandfather	148 (11.1%)
Grandchild	145 (10.7%)
Marital status	
Married	416 (58.8%)
Divorced and/or bereaved	467 (59.5%)

Table 2
Participant gambling behavior

Gambling measure	Number of days at 1 month	Amount of money at 1 month (JPY)
Total Gambling Behaviour ($N = 707$)	4.24 ± 5.87 (.00, 2.00, 5.00)	53285.84 ± 238682.05 (0, 6000, 30000)
Classification by GSAS-J cut-off score		
Mild symptom ($n = 435$)	1.81 ± 2.88 (.00, 1.00, 3.00)	15647.59 ± 104830.91 (0, 1000, 10000)
Moderate symptom ($n = 163$)	5.66 ± 5.07 (2.00, 14.00, 8.00)	59026.31 ± 121031.75 (10000, 30000, 50000)
Severe symptom ($n = 93$)	11.53 ± 8.15 (5.00, 10.00, 19.00)	196323.66 ± 564365.35 (23500, 50000, 150000)
Extreme symptom ($n = 16$)	13.63 ± 8.97 (6.25, 11.00, 20.00)	186687.44 ± 253744.46 (42500, 100000, 200000)
Classification by SOGS-J cut-off score		
Non-disordered gambling ($n = 490$)	3.22 ± 4.77 (.00, 1.00, 4.00)	42396.12 ± 265922.77 (0, 3000, 20000)
Probable disordered gambling ($n = 217$)	6.53 ± 7.33 (1.00, 4.00, 10.00)	77875.52 ± 158862.00 (3500, 28888, 89000)

Note. Mean $\pm$ standard deviation (25% percentile, median, 75% percentile).

The participants' mean age was 48.41 years ($SD = 10.79$; range = 20–69). The types of gambling in which participants were involved during the prior year were lottery 69.6% ($n = 492$), pachinko 49.4% ($n = 492$), horse racing 46.0% ($n = 325$), sports betting 38.5% ($n = 272$), pachislot 34.5% ($n = 244$), casinos 15.8% ($n = 112$), motorboat racing 15.3% ($n = 108$), mah-jong 14.7% ($n = 104$), bicycle racing 14.1% ($n = 100$), motorcycle racing 10.0% ($n = 71$), and online gambling 5.8% ($n = 41$). The SOGS-J scores identified 69.3% ($n = 490$) of participants as “non-disordered gamblers” and 30.7% ($n = 217$) as “probable disordered gamblers.”

Moreover, the GSAS-J scores identified 61.5% ($n = 435$) of the participants as having “mild gambling symptoms” (GSAS-J score = 13.66 ($SD = 2.50$), SOGS-J score = 2.48 ($SD = 1.92$)), 23.1% ($n = 163$) as having “moderate gambling symptoms” (GSAS-J score = 25.31 ($SD = 2.92$), SOGS-J score = 4.08 ($SD = 2.21$)), 13.2% ($n = 93$) as having “severe gambling symptoms” (GSAS-J score = 34.78 ($SD = 2.84$), SOGS-J score = 6.92 ($SD = 4.17$)), and 2.2% ($n = 16$) as having “extreme gambling symptoms” (GSAS-J score = 46.69 ($SD = 6.06$), SOGS-J score = 10.19 ($SD = 3.99$)). Of the total sample in each of the four categories, men represented 49.7% ($n = 216$), 55.8% ($n = 91$), 68.8% ($n = 64$), and 56.3% ($n = 9$), respectively. The gender split was even and consistent across all levels of gambling severity. Significant differences were found among the four groups for gender ($\chi^2(3, n = 707) = 11.75, p < .05$) and age ($F(3, 703) = 3.155, p < .05$; mild group -48.49 ± 10.36 years, moderate group -49.90 ± 11.60 years, severe group -45.85 ± 10.68 years, extreme group -45.69 ± 11.88 years). Dunnett's multiple comparison test results indicated that the age of the severe group was significantly lower than that of the moderate group.

We found no significant difference among the four groups related to work category ($\chi^2(36) = 31.83, p = .67$), education level ($\chi^2(12) = 6.48, p = .89$), annual income ($\chi^2(30) = 22.31, p = .84$), or marital status ($\chi^2(6) = 1.75, p = .94$).

Examination of the GSAS-J factor structure

To assess the similarity of the GSAS-J factor structure to that of the original GSAS (Kim et al., 2009), we conducted a confirmatory factor analysis. The analysis results showed that the fit index used for this study was in the acceptable range ($\chi^2(48) = 195.49, p < .05$, CFI = .927, RMSEA = .066, SRMR = .036). The path coefficients indicating the factor loading for each item were significant, 0.57–0.89 ($p < .05$). The standard error for each item was .039–.050 (Table 3).

Next, to examine the measurement invariance across a probable disordered and a non-disordered gambling sample, we applied multi-group confirmatory factor analysis to these samples. According to the model adoption criterion, Model 3 (scalar model) showed the best fit. Therefore, the GSAS-J demonstrated strong factorial invariance between probable disordered gamblers and non-disordered gamblers.

Examination of the GSAS-J internal consistency

To assess the internal consistency, we calculated Cronbach α for the overall GSAS-J scale. Cronbach α was 0.96, suggesting good internal consistency.

Examination of the GSAS-J validity

The Kruskal-Wallis H test and Pearson's product-moment correlation analyses were conducted to explore the concurrent validity of the GSAS-J. First, participants were separated into four groups based on their respective GSAS-J score. The four groups composed a mild symptom group ($n = 435$), moderate symptom group ($n = 163$), severe symptom group ($n = 93$), and extreme symptom group ($n = 16$). Gambling behavior differences among the four groups in the prior month were then assessed. Kruskal-Wallis H test results showed significant differences among the four groups: number of days, $\chi^2(3) = 285.58, p < .05$; amount of money, $\chi^2(3) = 288.68, p < .05$. In addition, pairwise comparisons using the Wilcoxon rank sum test revealed that severe and extreme gambling symptom group members spent more days and much more money gambling during the prior month than moderate and mild gambling symptom group members did.

We conducted correlation analyses between the GSAS-J and other gambling variables (SOGS-J, GRCS-J, and GUS-J). As expected, correlation analyses results showed that the GSAS-J score was significantly and well-correlated with the SOGS-J score ($r = .57$), the GRCS-J score ($r = .71$), and the GUS-J score ($r = .72$; Table 5).

Examination of gender differences for gambling symptoms in the Japanese sample

We applied t-tests to examine gender differences in the GSAS-J. The result was significant ($t(705) = 3.095, p < .05$). Our result indicated that men had more severe

Table 3
Test items, factor loadings, and Cronbach α

Item Number	GSAS - J item	GSAS original item	Factor loading	Cronbach α if item deleted*
1	この“一週間”で、ギャンブルしたいという余計な衝動に駆られた経験があったとすれば、それは平均でどのくらいの強さでしたか？	If you had unwanted urges to gamble during the past WEEK, on average, how strong were your urges?	.847	.952
2	この“一週間”のうちに、何度くらい、ギャンブルしたいという衝動に駆られましたか？	During the past WEEK, how many times did you experience urges to gamble?	.888	.951
3	この“一週間”のうちに、ギャンブルしたいという衝動で頭がいっぱいだったのは、（あわせて）何時間くらいでしたか？	During the past WEEK, how many hours (add up hours) were you preoccupied with your urges to gamble?	.818	.953
4	この“一週間”において、ギャンブルしたいという衝動をどのくらいコントロールできましたか？	During the past WEEK, how much were you able to control your urges?	.765	.953
5	この“一週間”のうちに、何度くらい、ギャンブルすることや賭け事が頭に浮かびましたか？	During the past WEEK, how often did thoughts about gambling and placing bets come up?	.845	.953
6	この“一週間”のうちに、おおよそ（あわせて）何時間くらい、ギャンブルをすることや賭け事について考えていましたか？	During the past WEEK, approximately how many hours (add up hours) did you spend thinking about gambling and thinking about placing bets?	.838	.952
7	この“一週間”のうちに、どのくらいギャンブルについての考えをコントロールできましたか？	During the past WEEK, how much were you able to control your thoughts of gambling?	.770	.953
8	この“一週間”の合計で、おおよそ何時間くらいを、ギャンブルあるいはギャンブルにつながる活動に費やしましたか？	During the past WEEK, approximately how much total time did you spend gambling or on gambling related activities?	.817	.953
9	この“一週間”の平均で、ギャンブルする直前の緊張や興奮をどの程度感じましたか？もしギャンブルしなかったとしても、したと仮定して、どのくらいの緊張や興奮を感じたであろうかを想像してお答えください。	During the past WEEK, on average, how much anticipatory tension and/or excitement did you have shortly before you engaged in gambling? If you did not actually gamble, please estimate how much tension and/or excitement you believe you would have experienced, if you had gambled.	.851	.951
10	この“一週間”の平均で、ギャンブルで勝ったことによる興奮や喜びをどの程度感じましたか？ギャンブルで勝つことはなかったとしても、あったと仮定して、どのくらいの興奮や喜びを感じたであろうかを想像してお答えください。	During the past WEEK, on average, how much excitement and pleasure did you feel when you won on your bet. If you did not actually win at gambling, please estimate how much	.792	.953

Table 3 Continued.

Item Number	GSAS - J item	GSAS original item	Factor loading	Cronbach α if item deleted*
11	この“一週間”のうちに、ギャンブルを原因とした気分の落ち込み（精神的苦痛、苦悩、恥、罪悪感、困窮）を、どの程度感じましたか？	excitement and pleasure you would have experienced, if you had won. During the past WEEK, how much emotional distress (mental pain or anguish, shame, guilt, embarrassment) has your gambling caused you?	.745	.954
12	この“一週間”のうちに、ギャンブルを原因とした個人的なトラブル（人間関係、金銭的、法的、仕事、病氣、健康）を、どの程度経験しましたか？	During the past WEEK, how much personal trouble (relationship, financial, legal, job, medical or health) has your gambling caused you?	.574	.958

Note. GSAS-J = the Japanese version of the Gambling Symptom Assessment Scale.

* All items Cronbach's α = .957.

Table 4

Summary of goodness of fit statistics for tested models in multi-group confirmatory factor analysis: Non-disordered gamblers group vs. probable disordered gamblers group

Model	χ^2	df	AIC	BIC	RMSEA	CFI	Δ CFI	Model comparison
Model 1	1609.87	96	13389	13772	.123	.935	-	-
Model 2	1659.09	107	13416	13749	.121	.931	.005	2 vs. 1
Model 3	1698.35	118	13433	13716	.118	.927	.004	3 vs. 2
Model 4	1082.64	130	13794	14022	.144	.880	.047	4 vs. 3
Model 5	1181.73	131	13891	14114	.151	.868	.012	5 vs. 4

Note. GSAS-J = the Japanese version of the Gambling Symptom Assessment Scale, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion, RMSEA = Root Mean Square Error of Approximation, CFI = Comparative Fit Index, model 1 = configural model, model 2 = metric model, model 3 = scalar model, model 4 = measurement error invariance model, model 5 = factor invariance model.

Table 5

Internal consistency and validity of a Japanese version of the Gambling Symptom Assessment Scale (N = 707)

	GSAS	SOGS	GRCS	GUS	Mean (SD)	Cronbach' α
GSAS	1.00	.57*	.71*	.72*	19.87 (19.16)	.96
SOGS		1.00	.46*	.49*	13.61 (13.04)	.80
GRCS			1.00	.70*	55.98 (28.95)	.97
GUS				1.00	12.27 (18.23)	.94

Note. GSAS = Japanese version of the Gambling Symptom Assessment Scale, SOGS = the South Oaks Gambling Screen-modified Japanese version, GRCS = Japanese version of the Gambling Related Cognitions Scale, GUS = Japanese version of the Gambling Urge Scale, SD = standard deviation.

* $p < .05$.

gambling symptoms than did women (men 20.85 ± 9.47 , women 18.73 ± 8.65 , Cohen's $d = 0.23$, 95% $CI = 0.08-0.38$).

Discussion

This study was designed to examine the factor structure and validity of the GSAS-J, which can accurately assess gambling symptoms in a Japanese sample population obtained from the Internet. We sought to examine the measurement invariance in the GSAS-J between a probable disordered and a non-disordered gambling sample. Our results demonstrated that the GSAS-J maintains a one-factor structure. Moreover, it is a valid measure for assessing gambling symptoms in Japanese. We also demonstrated that the GSAS-J indicates strong factorial invariance between probable disordered gamblers and non-disordered gamblers. These results suggest that the GSAS-J is useful by researchers and clinicians to assess gambling symptoms in Japanese speaking gamblers. We also conducted an analysis of gender differences in Japanese people, one which revealed that men in this sample had severer gambling symptoms than women.

Results of our analysis confirmed that the GSAS-J has a factor structure resembling that of the original GSAS (Kim et al., 2009). Cronbach α for the total GSAS-J scores (Cronbach $\alpha = .96$) indicated that GSAS-J holds good internal consistency with a Japanese sample. In fact, it was comparable to that of the original GSAS. We also verified the concurrent validity of the GSAS-J and found significant differences in gambling behaviors (number of days and amount of money) during the prior month among the four groups, with different degrees of severity based on the GSAS-J score. These results were consistent with results of an earlier study: gamblers with severe gambling symptoms are likely to gamble more frequently and spend greater amounts of money on gambling (Kim et al., 2009). Additionally, we examined the concurrent validities for the GSAS-J. Correlation analyses revealed that increased gambling symptoms are positively correlated with other characteristics related to disordered gambling: SOGS-J score, $r = .57$; GRCS-J score, $r = .71$; and GUS-J score, $r = .72$. These results are consistent with those reported for earlier studies (Tanaka et al., 2017; Yokomitsu et al., 2015), which found that individuals with disordered gambling are more likely to make erroneous predictions about gambling outcomes, have stronger urges to participate in gambling, and maintain greater gambling-related difficulties. The results of these correlation analyses further suggest that the construct measured by the GSAS-J is more strongly related to cognitive properties and gambling urges than to gambling-related difficulties.

In addition, a significant gender difference was found in GSAS-J scores. This result demonstrated that men had severer gambling symptoms than women in our study. A review reported by Johansson, Grant, Kim, Odlaug, & Götestam (2009) suggests male gender as a significant risk factor for gambling disorder. Earlier studies of English-speaking and Chinese-speaking gamblers indicate that men have more erroneous gambling-related cognition (Oei, Lin, & Raylu, 2007; Raylu & Oei, 2004a) and stronger gambling urges (Raylu & Oei, 2004b) than do women. Furthermore, earlier studies

in Japan have demonstrated that male gamblers exhibit more gambling-related symptoms than female gamblers do (Tanaka et al., 2017; Yokomitsu et al., 2015). Given these results, one would expect that men would have severer gambling symptoms than women in Japan.

Limitations

A potential limitation of this study was Internet sampling. Although the psychometric properties of the GSAS-J were good, it is not clear whether the results of this study can be generalized outside an online sample, such as in a clinical sample. Given that the GSAS-J would be used not only in a non-clinical sample, but also in the clinical assessment and treatment of disordered gamblers, it is necessary to assess the psychometric properties of the GSAS-J and to replicate the factor structure, reliability, and validity in a clinical sample.

Another limitation of the present study is the reliability and stability of the GSAS-J. In a clinical setting, we recommend that follow-up assessments be conducted. Future studies must be conducted to assess the test-retest reliability of the GSAS-J.

Conclusion

The results of the present study indicate that the GSAS-J is a valid measure for assessing gambling symptoms, at least in Japanese gamblers from an Internet recruiting. This scale might also be useful for future research to assess the effects of psychological treatment for individuals with gambling disorder, and the effects of prevention for non-problem and social gamblers in Japan, where systematic treatment protocols and treatment facilities have not yet been sufficiently established.

References

- Cheung, W. G., & Rensvold, B. R. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, 9, 233–255. doi:10.1207/S15328007SEM0902_5
- de Vet, W. C. H., Terwee, B. C., Mokkink, B. L., & Knol, L. D. (Eds.) (2011). *Measurement in medicine*. New York, NY: Cambridge University Press.
- Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about Internet questionnaires. *The American Psychologist*, 59, 93–104. doi:10.1037/0003-066x.59.2.93. Retrieved from: http://www.simine.com/docs/Gosling_et_al_AP_2004.pdf
- Johansson, A., Grant, E. J., Kim, W. S., Odlaug, L. B., & Götestam, G. K. (2009). Risk factors for problematic gambling: A critical literature review. *Journal of Gambling Studies*, 25, 67–92. doi:10.1007/s10899-008-9088-6

- Kato, H., & Goto, R. (2017). Geographical accessibility to gambling venue and pathological gambling: An econometric analysis of pachinko parlours in Japan. *International Gambling Studies*, 18, 111–123. doi:10.1080/14459795.2017.1383503
- Kim, H. J., Kim, J. H., Shin, Y. C., Shin, H. C., Grant, J. E., & Lee, T. K. (2005). The reliability and validity of the Korean translation of the Gambling Symptom Assessment Scale (KG-SAS). *Journal of Korean Neuropsychiatry Association*, 44, 682–689. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653091>
- Kim, W. S., Grant, E. J., Potenza, N. M., Blanco, C., & Hollander, E. (2009). The Gambling Symptom Assessment Scale (G-SAS): A reliability and validity study. *Psychiatry Research*, 166, 76–84. doi:10.1016/j.psychres.2007.11.008. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3641525>
- Lesieur, H. R., & Blume, S. B. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry*, 144, 1184–1188. doi:10.1176/ajp.144.9.1184
- Merkouris, S. S., Rodda, S. N., Austin, D., Ludman, D. I., Harvey, P., Battersby, M., ... Dowling, N. A. (2017). GAMBLINGLESS: FOR LIFE study protocol: A pragmatic randomized trial of an online cognitive-behavioural programme for disordered gambling. *BMJ Open*, 7, e014226. doi:10.1136/bmjopen-2016-013226
- Mokkink, B. L., Terwee, B. C., Patrick, L. D., Alonso, J., Stratford, W. P., Knol, L. D., ... de Vet, W. C. H. (2010). The COSMIN study reached international consensus on taxonomy, terminology, and definitions of measurement properties for health-related patient-reported outcomes. *Journal of Clinical Epidemiology*, 63, 737–745. doi:10.1016/j.ckinepi.2010.02.006. http://www.med.uottawa.ca/courses/CMED6203/Index_notes/COSMIN_JCE_article.pdf
- Moriyama, N. (2008). Clinical features of 100 pathological gamblers (Byoteki tobakusha hyakunin no rinsyoteki jittai). *Clinical Psychiatry*, 50, 895–904. [Japanese]
- Oei, T. P. S., Lin, J., & Raylu, N. (2007). Validation of the Chinese version of the Gambling Related Cognitions Scale (GRCS-C). *Journal of Gambling Studies*, 23, 309–322. doi:10.1007/s10899-006-9040-6
- Pallanti, S., DeCaria, M. C., Grant, E. J., Urpe, M., & Hollander, E. (2005). Reliability and validity of the pathological gambling adaptation of the Yale-Brown Obsessive-Compulsive Scale (PG-YBOCS). *Journal of Gambling Studies*, 21, 431–443. doi:10.1007/s10899-005-5557-3
- Raylu, N., & Oei, T. P. S. (2004a). The Gambling Related Cognitions Scale (GRCS): Development, confirmatory factor validation and psychometric properties. *Addiction*, 99, 757–769. doi:10.1111/j.1360-0443.2004.00753.x

- Raylu, N., & Oei, T. P. S. (2004b). The gambling urge scale: Development, confirmatory factor validation, and psychometric properties. *Psychology of Addictive Behaviors*, 18, 100–105. doi:10.1037/0893-164X.18.2.100
- Raymond, C. N., Lloyd, D. M., Miner, H. M., & Kim, W. S. (2007). Preliminary report on the development and validation of the Sexual Symptom Assessment Scale. *Sexual Addiction & Compulsivity*, 14, 119–129. doi:10.1080/10720160701310856
- Saito, S. (1996). Compulsive/pathological gambling and its treatment: An introduction of a gambling screen (SOGS–Modified Japanese Version) (Kyohakuteki (byoteki) tobaku to sono chiryo: Byoteki tobaku sukuriningu tesuto (shusei SOGS) no shokai o kanete). *Alcohol Dependence & Addiction*, 13, 102–109. [Japanese]
- Sato, T. (2008). So-called gambling addiction (Iwayuru gyannburu izonsyo). *Human Mind*, 139, 36–40. [Japanese]
- Stucki, S., & Rihs-Middel, M. (2007). Prevalence of adult problem and pathological gambling between 2000 and 2005: An update. *Journal of Gambling Studies*, 23, 245–257. doi:10.1007/s10899-006-9031-7
- Tanaka, Y., Nomura, K., Shimada, H., Maeda, S., Ohishi, H., & Ohishi, M. (2017). Adaptation and validation of the Japanese version of the Gambling Urge Scale. *International Gambling Studies*, 17, 192–204. doi:10.1080/14459795.2017.1311355
- Thomas, S. A., Merkouris, S. S., Browning, C. J., Radermacher, H., Feldman, S., Enticott, J., & Jackson, A. C. (2015). The PROblem Gambling RESearch Study (PROGRESS) research protocol: A pragmatic randomised controlled trial of psychological interventions for problem gambling. *BMJ Open*, 5, e0093885. doi:10.1136/bmjopen-2016-014226
- Wild, D., Grove, A., Martin, M., Eremenco, S., McElroy, S., Verjee-Lorenz, A., & Erikson, P. (2005). Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: Report of the ISPOR Task Force for Translation and Cultural Adaptation. *Value in Health*, 8, 94–104. doi:10.1111/j.1524-4733.2005.04054.x
- Yokomitsu, K., Takahashi, T., Kanazawa, J., & Sakano, Y. (2015). Development and validation of the Japanese version of the Gambling Related Cognitions Scale (GRCS-J). *Asian Journal of Gambling Issues and Public Health*, 5. doi:10.1186/s40405-015-0006-4

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Appendix

Gambling Symptom Assessment Scale 日本語版

以下の質問はギャンブルに関連した症状を評価するためのものです。次の中から最もよくあてはまる数字を1つ選んでください。

質問 1. この“一週間”で、ギャンブルしたいという余計な衝動に駆られた経験があったとすれば、それは平均でどのくらいの強さでしたか？



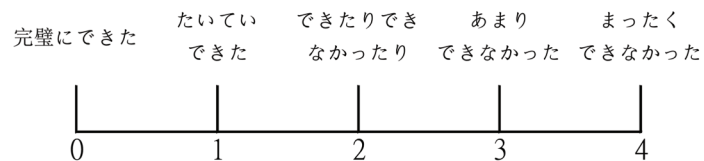
質問 2. この“一週間”のうちに、何度くらい、ギャンブルしたいという衝動に駆られましたか？

- 0) なし
- 1) 1 度のみ
- 2) 2、3 度
- 3) 4 度以上
- 4) ほとんど常に

質問 3. この“一週間”のうちに、ギャンブルしたいという衝動で頭がいっぱいだったのは、(あわせて) 何時間くらいでしたか？



質問 4. この“一週間”において、ギャンブルしたいという衝動をどのくらいコントロールできましたか？



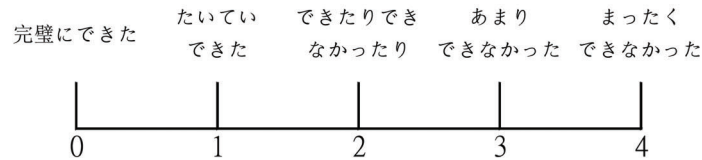
質問 5. この“一週間”のうちに、何度くらい、ギャンブルすることや賭け事が頭に浮かびましたか？

- 0) まったくなかった
- 1) 1 度のみ
- 2) 2、3 度
- 3) 4 度以上
- 4) ほとんど常に

質問 6. この“一週間”のうちに、おおよそ（あわせて）何時間くらい、ギャンブルをすることや賭け事について考えていましたか？



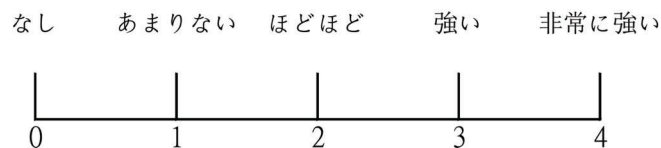
質問 7. この“一週間”のうちに、どのくらいギャンブルについての考えをコントロールできましたか？



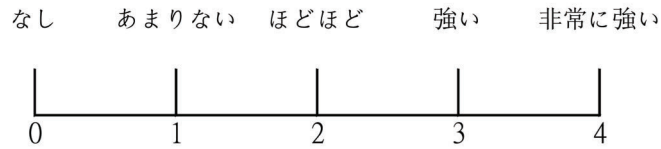
質問 8. この“一週間”の合計で、おおよそ何時間くらいを、ギャンブルあるいはギャンブルにつながる 活動に費やしましたか？



質問 9. この“一週間”の平均で、ギャンブルする直前の緊張や興奮をどの程度感じましたか？もしギャンブルしなかったとしても、したと仮定して、どのくらいの緊張や興奮を感じたであろうかを想像してお答えください。



質問 10. この“一週間”の平均で、ギャンブルで勝ったことによる興奮や喜びをどの程度感じましたか？ ギャンブルで勝つことはなかったとしても、あったと仮定して、どのくらいの興奮や喜びを感じたであろうかを想像してお答えください。



質問 11. この“一週間”のうちに、ギャンブルを原因とした気分の落ち込み（精神的苦痛、苦悩、恥、罪悪感、困窮）を、どの程度感じましたか？



質問 12. この“一週間”のうちに、ギャンブルを原因とした個人的なトラブル（人間関係、金銭的、法的、仕事、病気、健康）を、どの程度経験しましたか？



Consumer Perspectives of a Multi-Venue Gambling Self-Exclusion Program: A Qualitative Process Analysis

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Abstract

Self-exclusion is an important harm minimization strategy implemented by gambling operators to restrict a problem gambler's access to gambling opportunities. Aspects of self-exclusion, including low uptake and non-compliance, limit the effectiveness of programs. Research that considers the consumer perspective is needed to enhance the perceived utility of self-exclusion in the target audience. Twenty interviews were conducted with current ($n = 13$) and former ($n = 7$) participants of a multi-venue self-exclusion program for land-based gaming machine venues in New South Wales, Australia. Participants were asked open-ended questions about their experiences and opinions of the program, including its strengths and weaknesses, and suggested improvements for future consumers. Overall, participants found self-exclusion beneficial. However, several shortcomings of the program were expressed, including lack of available public information and overly complicated registration processes. Participants lacked confidence in venues' willingness and ability to identify non-compliant gamblers and highlighted the need for vastly improved detection systems. The quality of interactions with venue staff in relation to self-exclusion were mixed; counsellor support, however, was perceived as important from beginning to end of a self-exclusion period. Results suggest that gambling operators should increase marketing efforts to promote the availability and benefits of self-exclusion. Investigation of strategies to streamline registration processes and to augment detection systems with new technologies was supported. Venue staff may benefit from training in appropriate self-exclusion facilitation procedures. Gambling operators should aim to foster strong links between self-exclusion programs and professional gambling counselling services.

Keywords: gambling-related harm, responsible gambling, harm minimization, gambling intervention, self-exclusion, problem gambling, gambling disorder, qualitative methods

Résumé

L'auto-exclusion est une importante stratégie de minimisation des méfaits mise en œuvre par les exploitants de jeux d'argent afin de limiter l'accès des joueurs pathologiques aux occasions de jeu. Certains aspects de l'auto-exclusion, notamment la faible participation et la non-conformité, limitent toutefois l'efficacité des programmes. Des recherches tenant compte de la perspective du joueur sont nécessaires pour renforcer l'utilité perçue de l'auto-exclusion auprès du public cible. Vingt entretiens ont été menés auprès de participants actuels ($n = 13$) et anciens ($n = 7$) d'un programme d'auto-exclusion multi-sites pour les salles de jeux de hasard en Nouvelle-Galles-du-Sud, en Australie. On a posé aux participants des questions ouvertes sur leurs expériences et leurs opinions sur le programme, y compris ses forces et ses faiblesses, et sur des améliorations à apporter pour les futurs participants. Dans l'ensemble, les participants ont trouvé le programme d'auto-exclusion bénéfique. Toutefois, plusieurs lacunes du programme ont été signalées, notamment le manque d'informations disponibles dans le public et des processus d'inscription excessivement compliqués. Les participants manquaient de confiance en la volonté et la capacité des propriétaires de sites d'identifier les joueurs non conformes, et ils ont souligné la nécessité d'améliorer considérablement les systèmes de détection. La qualité des interactions avec le personnel des lieux concernant l'auto-exclusion était mitigée; le soutien des conseillers a toutefois été perçu comme important du début à la fin de la période d'auto-exclusion. Les résultats laissent croire que les exploitants de jeux d'argent devraient intensifier leurs efforts de publicité pour promouvoir la disponibilité et les avantages de programmes d'auto-exclusion. La recherche de stratégies visant à rationaliser les processus d'inscription et à améliorer les systèmes de détection par de nouvelles technologies a été encouragée. Les membres du personnel des sites peuvent bénéficier d'une formation sur les procédures appropriées de facilitation pour l'auto-exclusion. Les exploitants de jeux devraient s'efforcer d'établir des liens étroits entre les programmes d'auto-exclusion et les services de conseillers professionnels en matière de jeu.

Introduction

Excessive gambling can result in a range of harms experienced by individual gamblers, family members, and the broader community. These harms occur across several domains, including financial, physical and mental health, employment and productivity, relationships, legal (i.e., criminal activity), and general quality of life (Langham et al., 2016; Shannon, Anjou, & Blaszczyński, 2017). National and international prevalence estimates of past-year problem gambling range from 0.3% to 1.1% (M. Abbott, Romild, & Volberg, 2017; Armstrong & Carroll, 2017; Dowling et al., 2016; Gainsbury et al., 2014; Markham, Young, Doran, & Sugden, 2017);

one study, however, suggests that between 7% and 22% of non-problem gamblers also experience some degree of gambling-related harm (Shannon et al., 2017). Electronic gaming machines (EGMs) have been identified as an especially risky form of gambling because of specific structural features (rapid and continuous play) and an overrepresentation of EGM players among gambling help seekers (Delfabbro, 2011; Dowling, Smith, & Thomas, 2005; James, O'Malley, & Tunney, 2016). Consequently, most harm minimization efforts are focused on EGM gambling. Harm minimization strategies exist as part of a “responsible gambling” framework designed to protect at-risk segments of the community. Self-exclusion programs are a predominant harm minimization strategy provided by the gambling industry, and in many jurisdictions, they are required by government regulators (Gainsbury, 2014; Gaming Machines Regulation 2010; Ladouceur, Blaszczynski, Shaffer, & Fong, 2016; Ladouceur, Shaffer, Blaszczynski, & Shaffer, 2017).

Self-exclusion is a formal method of pre-commitment that allows individuals to limit their own access to gambling opportunities. It involves a deed signed between the individual and the gambling operator, in which the individual agrees not to enter the gambling venue for an extended period (6 months to life). Personal information, including a photograph, is collected and securely stored by operators for identification purposes. Staff are authorized to deny access to an excluded individual or remove them from the gambling premises if they detect a breach of the agreement. Traditional systems of self-exclusion require participants to establish agreements with individual gambling venues, often involving paper-based deeds stored in physical folders, and rely on detection by sight recognition alone. Developments in technology have led to the implementation of online exclusion databases that allow instantaneous registration in multiple venues (Pickering, Blaszczynski, & Gainsbury, 2018). Biometric verification methods, including facial recognition, have also been piloted as a method to assist with the detection of breaches (Cavoukian et al., 2013).

Self-exclusion systems differ between jurisdictions according to the gambling environment, government licensing and regulatory framework, and organization providing the program. Opportunities to gamble are widely available in Australia. EGMs are situated in venues such as hotels, community clubs, and casinos. Geographical analysis of population level data has shown that most Australians live within walking distance of an EGM venue (Pickernell, Keast, Brown, Yousefpour, & Miller, 2013). All EGM venues in Australia provide options to self-exclude; the degree to which programs are mandatory and the details of required features, however, differ considerably between states and territories. Unlike in some European nations, no single body in Australia is responsible for implementing self-exclusion (De Bruin, Benschop, Braam, & Korf, 2006; Hayer & Meyer, 2011). Therefore, various programs operate through individual venues, private companies, industry representative bodies, and government agencies (Australasian Gaming Council, n.d.). We have previously argued for a more uniform approach to self-exclusion in Australia (Pickering et al., 2018).

Despite substantial differences between jurisdictions and programs, evaluation studies generally associate positive outcomes with self-exclusion participation

(Gainsbury, 2014). Evaluations of self-exclusion programs in a number of international jurisdictions showed that participants reported benefits such as decreased problem gambling severity and improved psychosocial functioning as a result of their exclusion (Hayer & Meyer, 2011; Hing & Nuske, 2012; Hing, Russell, Tolchard, & Nuske, 2015; Ladouceur, Jacques, Giroux, Ferland, & Leblond, 2000; Ladouceur, Sylvain, & Gosselin, 2007; Pickering et al., 2018; Townshend, 2007). The effectiveness of self-exclusion, however, is seriously limited by low rates of utilization, with 9-17% of past-year and 0.4-1.5% of lifetime problem gamblers involved in programs (Nowatzki & Williams, 2002; Productivity Commission, 2010). Other studies indicate that up to 60% of gamblers fail to comply with self-exclusion agreements and up to 77% of these breaches are not detected (Nelson, Kleschinsky, LaBrie, Kaplan, & Shaffer, 2009; Schrans, Schellinck, & Grace, 2004). More than half of self-excluded gamblers will continue gambling at other venues or by engaging in other forms of gambling during the self-exclusion period (59-75%; De Bruin et al., 2006; Nelson et al., 2009; Responsible Gambling Council, 2008).

Although most studies focus on outcomes of self-exclusion, a limited number of studies have investigated the specific processes involved. Despite the fact that self-exclusion is a widely available harm minimization tool, public awareness of it and knowledge about each program's characteristics is generally lacking (Nowatzki & Williams, 2002). In addition, negative stigma associated with gambling problems and concerns about privacy often delay or prevent self-exclusion decisions (J. Abbott, Francis, Dowling, & Coull, 2011; Hing, Nuske, Gainsbury, & Russell, 2016). Self-excluded participants report mixed experiences in terms of registration procedures and venue monitoring efficacy. Perceptions of staff helpfulness and commitment to self-exclusion programs are particularly variable (Hing, Tolchard, Nuske, Holdsworth, & Tiyce, 2014). In studies involving traditional self-exclusion programs, participants perceived the need to exclude from each venue separately as a major weakness. They described the process as emotionally difficult and requiring a substantial amount of personal time and resources (Hing et al., 2014).

Identified limitations of current self-exclusion programs, in addition to the rapid expansion of gambling availability worldwide (largely due to advances in digital technologies), underscore the importance of ongoing advancement of harm minimization tools (Auer & Griffiths, 2015; Gainsbury, Russell, Blaszczynski, & Hing, 2015; Kolandai-Matchett, Bellringer, Landon, & Abbott, 2017; LaBrie, Kaplan, LaPlante, Nelson, & Shaffer, 2008). Consultation of consumers at all stages of design and implementation is critical in order to maximize consumer experience and to align characteristics of harm minimization with consumer needs (Brady & Tolley, 2014; Dennis, Perl, Huebner, & McLellan, 2000; Gainsbury, Jakob, & Aro, 2018). Gamblers' involvement in the development of self-exclusion programs, however, is largely missing, resulting in a high potential for unanticipated flaws in the system that can undermine effectiveness. Research directed at gaining a deeper understanding of the whole exclusion process, from the consumer perspective, can be used to inform enhancements designed to maximize rates of uptake, develop more consistent monitoring systems, and provide overall better consumer supports.

Qualitative research methodologies are highly suited to explore the cognitive-emotional factors that shape consumer experience and understanding of harm minimization tools (Svensson, 1995). There is, however, a dearth of peer-reviewed qualitative studies that focus on the topic of self-exclusion (Hing & Nuske, 2012). In this study, thematic analysis was used to explore current consumers' personal experiences of a self-exclusion program and their perspectives on its different characteristics. The program operates in New South Wales, Australia, and allows consumers to exclude from multiple land-based gambling venues simultaneously via a centralized online database with assistance from venue staff or a counsellor. Multi-venue self-exclusion (MVSE) is among the more technologically advanced programs currently available in Australia. Insights from analysis of the data and comparison with the self-exclusion literature may be used to make suggestions for program enhancement. These insights are relevant for self-exclusion providers and policy makers in establishing appropriate standards.

Method

Participants

A convenience sampling method was applied. Individuals listed on the ClubsNSW MVSE database were contacted via e-mail to request their participation in an interview about their self-exclusion experiences. ClubsNSW is a representative body for not-for-profit social venues that contain EGMs and other gambling products, including sports and race wagering and Keno. Both currently and formerly self-excluded individuals were invited to participate in the study. Such liberal eligibility criteria supported a diverse range of perspectives. Recruitment e-mails were sent only to individuals who had previously consented to being contacted for research purposes during their self-exclusion enrolment procedure. Interviews were scheduled with individuals who responded with interest to the initial recruitment e-mail. Interviews were conducted with a final sample of 20 participants. As convenience sampling is prone to self-selection bias, the sample was not intended to represent the broader population of help-seeking gamblers. Recruitment was terminated when data saturation was reached. Information redundancy meant that few new topics were raised or opinions expressed during the final interviews (Saunders et al., 2018).

Of the 20 participants interviewed, 13 were current and seven were former self-excluders. Their mean age was 46.2 years ($SD = 11.23$), most were not married ($n = 17$; 85%), and most had no children ($n = 12$; 60%). The sample included slightly more male ($n = 11$; 55%) than female participants. Eighty percent of participants were employed ($n = 16$); household income of half the sample was less than AU\$49,999. Eighteen of 20 participants (90%) met the classification threshold for a gambling problem in the past 12-month period. In terms of their self-exclusion involvement, the 13 currently excluded participants had been registered in the program for an average of 19 months ($SD = 12.61$). The median exclusion period for these participants was 48 months, whereas the seven formerly excluded participants

had selected a median 12-month period. In the latter group, participants' exclusion agreements had ended an average of 7 months ($SD = 4.39$) prior to the current interviews. Across all participants, they had excluded from an average of 22.35 ($SD = 19.86$) different venues and had enacted self-excluded agreements 1.90 ($SD = 1.02$) times. Half ($n = 10$) reported being compliant with their self-exclusion agreement, and three-quarters ($n = 15$) had sought additional professional counselling.

Process

The study was carried out in accordance with the guidelines set out in the National Health and Medical Research Council (2007) National Statement on Ethical Conduct in Human Research. The protocol was approved by the Human Research Ethics Committee of the University of Sydney. Sixteen interviews were conducted in person, and to accommodate participants living in regional and remote locations, three interviews were conducted via telephone and one over Skype. Advantages of face-to-face interviewing include the ability to control the interview environment, build rapport with interviewees, and interpret non-verbal cues in relation to response content (Lo Iacono, Symonds, & Brown, 2016; Opdenakker, 2006). Although these factors are affected to differing degrees by telephone and Skype communication, such methods provide access to a more diverse group of interviewees. For in-person interviews, a consent document was reviewed and signed, and a brief formal questionnaire was completed immediately prior to the interview commencing. For telephone and Skype interviews, participants completed and returned these documents by e-mail before the interviews were conducted. On average, the interviews took 51.80 min ($SD = 16.24$) to complete. They were audio-recorded with participants' consent; the audio files were subsequently transcribed verbatim by a professional transcription company. Participants were compensated for their time with an AU\$50 retail gift card.

Measures

A formal questionnaire was administered to elicit demographic details about participants' age, gender, ethnicity, marital status, education, employment, household income, and living situation. The questionnaire also incorporated the Problem Gambling Severity Index of the Canadian Problem Gambling Index (CPGI-PGSI; Ferris & Wynne, 2001) to measure self-reported symptoms of problem gambling over the past 12 months. The CPGI-PGSI has previously demonstrated good internal consistency, construct validity, and test-retest reliability (Ferris & Wynne, 2001; Mcmillen & Wenzel, 2006; Wynne, 2003).

The semi-structured interview asked participants open-ended questions about personal reasons for joining self-exclusion, helpful and unhelpful aspects of self-exclusion, suggestions for improving current self-exclusion processes, types of support to best complement self-exclusion, opinions on penalties for non-compliant gamblers and unresponsive operators, and the timing and process for revoking

self-exclusion. Probing was used appropriately to aid with clarification and to follow up on key points raised (Berg, 2004).

Data Analysis

Descriptive statistics for demographic data and gambling severity scores were calculated by using IBM SPSS Statistics (Version 24). Thematic analysis with NVivo (Version 11.0) was applied according to guidelines detailed in Braun and Clarke (2006). To accurately represent consumer perspectives, we analysed data inductively (“bottom-up”) at the semantic (“explicit”) level of interpretation. The first and second authors initially read through the interview transcripts to familiarize themselves with the data. ZN systematically applied codes to the data where units of meaning were observed. Potential coding bias was minimized, as ZN was unfamiliar with the self-exclusion literature at this point of the analysis. DP and ZN conjointly reviewed the codes and organized them into a set of candidate themes. These themes were subsequently reviewed by DP and ZN to ensure that the coded data accurately reflected each theme, and themes were cross-referenced against transcripts to add omitted extracts into relevant themes. Interpretive disagreements were discussed until thematic consensus was achieved.

Results

Participants expressed a diverse range of opinions and mixed experiences related to the MVSE program. Given the focus of this study—to inform program advancements—the sections below emphasize the weaker aspects of MVSE that were identified. Overall, however, participants found MVSE to be a useful tool to assist their recovery from a gambling disorder. The final themes and the subtheme are represented below as headings and a subheading, respectively. In terms of the self-exclusion process, themes are presented in approximate temporal order.

Access to Information

Participants commented on the scarcity of public information available about self-exclusion and supported more active promotional strategies. An accessible in-venue information packet or downloadable e-guide was suggested to increase gamblers’ understanding of specific features offered in the program. Venue staff were perceived to be responsible for approaching visibly at-risk gamblers.

He came over and said, “Look, if it’s a problem we have a program.” I agreed immediately. (Male, 43)

Counsellors were mentioned numerous times as a source of program referral. In some cases, family or friends convinced participants to self-exclude.

My daughter knew I had a problem. She was really distressed about me. She came home and said, “This is what we have to do mum.” (Female, 53)

Registration

A number of participants suggested that the sign-up procedure was overly complicated and time-consuming.

I did find the process to begin with a little difficult. When you're in that state and make that call, you would hope that something can be done within a very short space of time. (Male, 47)

Although participants supported the option to exclude from multiple venues, several indicated that the maximum limit (i.e., 35 venues) was too low.

There are so many clubs around me. Even though I excluded from some, I can still go to others. (Female, 57)

Self-excluding from venues across a larger geographical region was preferred, as were longer exclusion periods.

The time goes fast. Very fast. That's why I would select a longer period. (Male, 65)

Some participants felt they were disrespected or treated with contempt during the registration process. This experience, however, was not ubiquitous, as others complimented the professionalism and compassion of staff. The importance of staff training was emphasized.

Have a person with compassion, who doesn't treat you like an imbecile and lecture you, somebody who is trained to deal with people with addiction problems. They need to educate staff to know how to handle it. It's just about respecting that person. (Female, 44)

Those who self-excluded with a counsellor reported positive experiences. Counsellors were helpful in recommending the program, providing relevant information, and assisting with procedural aspects of registration.

Self-registration. Most participants supported online self-facilitated methods of registration to improve its convenience, efficiency, and privacy, in addition to bolstering individuals' self-efficacy.

Once you understand you've got a problem, you want to try and solve it on your own first of all. It's empowering to try on your own. (Female, 56)

However, various potential disadvantages of online self-registration were raised, including difficulties in navigating the technical and legal complexities, impulsive exclusions and less commitment to the program, unsolicited third-party exclusions, no personal support, and missed opportunities for counselling.

A lot of people may not be technically savvy enough to do that, and for me there was a lot of technicalities and legalities that I didn't necessarily understand. (Male, 30)

Detection and Enforcement

Most criticisms of the program related to the ineffectiveness of gambling venues in detecting self-exclusion breaches and removing non-compliant individuals from the premises. Some participants believed that irresponsible venues may be lax in this area, as it conflicts with their revenue goals.

They turn a blind eye. As long as that money keeps going in the machines, they couldn't care less. (Male, 43)

Others felt that staff could be more discreet in their management of individuals who were detected breaching self-exclusion.

If there's a lot of people around, there's ways you can pull someone to the side. (Male, 37)

A range of suggestions were advanced to improve venues' self-exclusion monitoring systems, including requirements for high-resolution, up-to-date profile images; verification of ID or member card against the exclusion database at entry into the venue or during a payout; and use of biometric technology.

Penalties for Non-Compliance

Most participants supported penalties for gambling venues that allowed self-excluded individuals to continue gambling in their premises. Suggestions included monetary fines (either a fixed amount [AUD\$10,000] or percentage of the venue's daily revenue [5-10%]) and mandatory shutdowns of the premises for a designated period. In addition to venue management, concerns were raised that floor staff do not take their responsibility to enforce self-exclusion seriously and take a "passive" approach. Hence, some participants proposed regular reviews of staff requirements in relation to the program and disciplinary action when protocols are not adhered to (e.g., fines equivalent to those for staff breaches of responsible service of alcohol). In contrast, some participants believed that venues and staff should not be held accountable because of the difficulties associated with identifying self-excluders.

Until there are systems in place where they can detect straight up that you're not supposed to be in there then it's not really their fault. I mean you can't expect the staff to recognize thousands of faces. (Male, 31)

To ensure that gamblers appreciate the seriousness and legality of a self-exclusion agreement, several participants suggested applying financial penalties (suggested amounts ranged from AUD\$50 to AUD\$10,000) or life bans to excluded individuals who repeatedly breach the agreement. Others believed that it is not helpful to punish an already vulnerable individual. A more appropriate and compassionate strategy would be to focus on education and provide additional support.

Additional Help

Face-to-face counselling and 24-hour telephone or Internet support services were most frequently endorsed as effective auxiliary services to self-exclusion. Therapy was highlighted as a way to resolve underlying psychological issues that may lead someone to gamble. Self-exclusion by itself was perceived as not sufficient to address these issues.

Self-exclusion is kind of a Band-Aid or bandage around the problem. Why you need the bandage or the Band-Aid has to be addressed. (Female, 60)

In-venue counselling services (particularly in large clubs) were suggested as a means to provide immediate help to problem gamblers.

Revocation and Renewal

Participants' opinions about early withdrawal from the program varied. Approximately two-thirds insisted that it should not be permitted. Their justification was that self-exclusions are "legal contracts" and therefore, once signed, ought to be binding. Otherwise, the potency of self-exclusion is undermined, as well as its ability to help problem gamblers.

Everyone has a weak moment where they think, "oh, I wish I hadn't done this."
But I think ultimately, you'd regret it. (Female, 33)

A number of participants believed excluded individuals should be permitted to withdraw with a counsellor's authorization. A small proportion indicated that it is the individual's decision alone to withdraw from the program.

In terms of the renewal process, more than half of the participants suggested that there should be a notification (e-mail or telephone) shortly before the current agreement ends, including simple, easy-to-enact renewal options. Other opinions were that the agreement should renew automatically as the default, unless the individual expressly indicates their desire for it to terminate. One participant suggested a face-to-face counselling and debriefing session at the conclusion of all agreements, regardless of the decision to renew self-exclusion or allow it to expire. Another suggested monitoring individuals who were re-entering gambling venues for a brief probationary period.

Discussion

This qualitative study explored the unique personal experiences and attitudes of consumers of a centralized MVSE program for land-based gaming machine venues in New South Wales, Australia. Similar to what has been reported in previous studies, participants in the present study criticized the lack of public information available that clearly explains self-exclusion options to consumers (Hing & Nuske, 2012; Hing et al., 2014). Low rates of uptake among the target population are likely

related to inadequate efforts to promote the availability of self-exclusion. This is not unique to self-exclusion, as low public awareness has been reported across various Australian gambling help services (Gainsbury, Hing, & Suhonen, 2013). Gainsbury et al. (2013) advocate the “demystification” of the help-seeking process with strategic advertising efforts to educate gamblers about the availability of confidential, low-cost, culturally sensitive services and how they can assist with gambling problems. As several participants became aware of self-exclusion via family, friends, or a counsellor, program providers may consider targeting these third-party influencers in advertisements for self-exclusion.

The ability to simultaneously exclude from multiple venues in the current program is a structural improvement over traditional systems in which physical attendance is required at each individual venue (Hing et al., 2014). However, several participants in this study found the MVSE registration process to be laborious. Although refinements to streamline registration processes should be implemented where possible, many registration steps are necessary. As self-exclusion involves a legal document, gamblers need to have a clear understanding of their individual responsibilities and those of the nominated gambling venues. The personal information collected during registration is important for identifying the individual in the event of a breach. Blaszczynski, Ladouceur, and Nower (2007) also argue that registration should be coupled with a formal clinical assessment and referral to specialist treatment services. A challenge in devising appropriate registration procedures for self-exclusion is achieving the correct balance between thoroughness and efficiency.

To our knowledge, this study is the first to explore consumer perspectives of a self-registration process for self-exclusion. Despite the various drawbacks identified, the associated benefits and the support from most of the sample for this feature suggest that it should be pilot tested in further studies.

Limitations of technology and resources hinder the expansion of self-exclusion. As self-exclusion membership increases, it is unreasonable to expect venue staff to subjectively detect and accurately report on non-compliant consumers (Gainsbury, 2014). The inability of venue operators to reliably detect non-compliant individuals was commonly referenced in this study. Half of the sample also reported compliance with self-exclusion, which raises questions concerning whether participants' perceptions were based on their experience or influenced by unspecified factors. The findings, however, are supported by studies that report that up to three-quarters of self-exclusion breaches remain undetected (Responsible Gambling Council, 2008; Schrans et al., 2004). Lack of confidence in detection systems seriously undermines the potency of programs. More effective mechanisms are needed that integrate new technologies to manage this crucial aspect of self-exclusion. The high density of gaming machine venues in Australia suggests a need for jurisdiction-wide self-exclusion. This was supported in the current findings, as participants felt that the MVSE upper limit of 35 venues was not sufficient. Knowledge sourced from the implementation of national self-exclusion programs in other countries, including the United Kingdom and European member states, should be applied to the

Australian context, adjusting for variations between gambling environments (Chrysalis Research, 2017; Griffiths, Hayer, & Meyer, 2009).

Participants interpreted breach detection failures as evidence of the conflicting interest that venues face between helping problem gamblers and generating profit. The degree of genuine investment by the gambling industry in developing effective harm minimization tools has been questioned previously (Chóliz, 2018; Hancock & Smith, 2017; Loh, Deegan, Inglis, & Monroe, 2015; O’Neil, et al., 2003). Objective and transparent scientific research programs designed to rigorously monitor operations and outcomes are therefore an essential aspect of harm minimization strategies (Blaszczynski et al., 2007; Tanner, Drawson, Mushquash, Mushquash, & Mazmanian, 2017; Wohl & Wood, 2015). Furthermore, implementation of corporate social responsibility practices is linked to positive perceptions of brand integrity and general commercial success, including in the gambling industry (Cai, Jo, & Pan, 2012; Lindorff, Jonson, & McGuire, 2012; Luo, 2018; Wang, Fu, Qiu, Moore, & Wang, 2017).

Most participants felt that venues should receive some form of penalty for allowing self-excluded gamblers to enter the premises. It is difficult, however, to demonstrate that a venue has wilfully permitted the breach to occur. Several participants reported positive staff interactions during their process of self-excluding, suggesting that significant variability exists between venues in terms of the culture and attitudes toward self-exclusion and problem gambling in general. It is likely that the broader social stigma associated with problem gamblers plays a considerable role in engendering the insensitivity displayed by some staff. Perceived stigma and negative self-perception are associated with coping strategies characterized by secrecy and reluctance to self-acknowledge problems, which can extend to avoidance of help-seeking behaviors such as self-excluding (Gavriel-Fried & Rabayov, 2017; Hing et al., 2016; Hing & Russell, 2017).

The current study provides evidence for greater integration between self-exclusion and professional counselling services. Three-quarters of the participants had sought counselling during their self-exclusion. Ongoing counselling support was perceived as beneficial from the beginning to the end of self-exclusion. Participants also recognized the limitations of self-exclusion as a strategy to control their physical access to gambling venues. In contrast, psychological treatments are designed to correct inaccurate cognitions and address the emotional factors that contribute to gambling problems (Blaszczynski et al., 2007). With an external barrier of self-exclusion in place, professional counselling can empower individuals by strengthening their internal controls over gambling.

The current findings add evidence to an area of self-exclusion that has received little research attention, that is, the processes of renewal and expiration. Participants’ suggestions supported some of the recommendations made in a report by the Responsible Gambling Council (2016), specifically, the importance of communication between venues and excluded gamblers during this stage and the provision of

counselling or some form of debriefing at the end of the exclusion period. Not all findings were consistent: Participants suggested passive automatic renewal of self-exclusion, whereas in the report, the Responsible Gambling Council (2016) recommends an active renewal system to reinforce individual commitment to the program. Procedures at the end of a self-exclusion agreement are highly variable in Australia, ranging from passive expiration to active application for removal and counselling requirements (Australasian Gaming Council, n.d.). Further quantitative research may be useful to continue developing best practice methods for this critical stage of self-exclusion.

Limitations

The qualitative nature of this study allowed the collection of in-depth data, though at the cost of representativeness associated with larger sample research designs. In terms of age and gender, however, the demographics of this sample were comparable to those of previous self-exclusion studies (Hayer & Meyer, 2011; Ladouceur et al., 2007; Tremblay, Boutin, & Ladouceur, 2008). Although one strength of qualitative research is methodological flexibility, for the same reason, it is sometimes criticized for lacking scientific rigour, which can lead to untrustworthy, non-reproducible data. To maximize the reliability of the current findings, we applied a structured thematic analysis framework (Braun & Clark, 2006) and used a second coder for inter-coder reliability. We also analysed data from participants' retrospective accounts of their experiences, which may be affected by recall and interpretation biases. A key function of the qualitative methodology is to understand the subjective experiences of individuals; therefore, bias is in this sense unavoidable but not necessarily negative (Sutton & Austin, 2015).

Conclusion

This qualitative research shows that individuals who participated in MVSE perceive the program as a useful tool to assist with their recovery from a gambling disorder. The current participants, however, are only part of a small subsample of problem gamblers who decide to seek formal help (Gainsbury et al., 2013). The interviews identified key aspects of MVSE that may negatively affect the rate of uptake and program effectiveness. These aspects included initial difficulties in accessing clear information about the program, overly complicated and tedious registration procedures, insensitive venue staff, lack of venue commitment, and unreliable detection systems. Perspectives on these issues, however, were not uniform. For example, a number of participants praised staff professionalism during the self-exclusion process. Suggested enhancements to self-exclusion were even more varied, showing the diversity of opinions even within a small group with shared experiences. Future quantitative studies are needed to obtain more specific estimates of preferred program enhancements among different stakeholder groups. Investigators may wish to pilot such enhancements in additional studies to test user acceptability and investigate the potential impact on program uptake and effectiveness.

References

- Abbott, J., Francis, K., Dowling, N. A., & Coull, D. (2011). *Motivators and barriers to joining a self-exclusion program*. Presented at the National Association for Gambling Studies (NAGS) 21st Annual International Conference, Crown Conference Centre, Melbourne, Australia.
- Abbott, M., Romild, U., & Volberg, R. (2017). The prevalence, incidence, and gender and age-specific incidence of problem gambling: Results of the Swedish longitudinal gambling study (Swelogs). *Addiction*, 113, 699–707. doi:10.1111/add.14083
- Armstrong, A. R., & Carroll, M. (2017). *Gambling activity in Australia: Findings from wave 15 of the Household, Income and Labour Dynamics in Australia (HILDA) Survey*. Melbourne, Australia: Australian Institute of Family Studies. Retrieved from <https://aifs.gov.au/agrc/publications/gambling-activity-australia>
- Auer, M. M., & Griffiths, M. D. (2015). Testing normative and self-appraisal feedback in an online slot-machine pop-up in a real-world setting. *Frontiers in Psychology*, 6. doi:10.3389/fpsyg.2015.00339
- Australasian Gaming Council. (n.d.). *Self-exclusion and exclusion programs*. Retrieved from <https://www.austgamingcouncil.org.au/self-exclusion-programs>
- Berg, B. L. (2004). *Qualitative research methods for the social sciences* (5th ed.). Long Beach, CA: Pearson Education.
- Blaszczynski, A., Ladouceur, R., & Nower, L. (2007). Self-exclusion: A proposed gateway to treatment model. *International Gambling Studies*, 7, 59–71. doi:10.1080/14459790601157830
- Brady, M., & Tolley, E. (2014). Aligning product development and user perspectives: Social-behavioural dimensions of multipurpose prevention technologies. *BJOG: An International Journal of Obstetrics & Gynaecology*, 121, 70–78. doi:10.1111/1471-0528.12844
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. doi:10.1191/1478088706qp0630a
- Cai, Y., Jo, H., & Pan, C. (2012). Doing well while doing bad? CSR in controversial industry sectors. *Journal of Business Ethics*, 108, 467–480. doi:10.1007/s10551-011-1103-7
- Cavoukian, A., Marinelli, T., Stoianov, A., Martin, K., Plataniotis, K. N., Chibba, M., ... Frederiksen, S. (2013). Biometric encryption: Creating a privacy-preserving ‘watch-list’ facial recognition system. In P. Campisi (Ed.), *Security and privacy in*

biometrics (pp. 215–238). London, United Kingdom: Springer. doi:10.1007/978-1-4471-5230-9_9

Chóliz, M. (2018). Ethical gambling: A necessary new point of view of gambling in public health policies. *Frontier in Public Health*, 6. doi:10.3389/fpubh.2018.00012

Chrysalis Research. (2017). *Evaluation of the Multi-Operator Self-Exclusion Scheme (MOSES)* (pp. 1–42). Retrieved from <https://about.gambleaware.org/media/1467/jn175-moses-evaluation-report-final-report-230317.pdf>

De Bruin, D. E., Benschop, A., Braam, R., & Korf, D. J. (2006). *Meerspellers: Meerjarige monitor en followuponderzoek naar amusementscentra en bezoekers* [Diversive gambling: Multiple year monitor and follow-up survey into amusement arcades and visitors]. Utrecht, Netherlands: CVO/Bonger Instituut.

Delfabbro, P. (2011). *Australasian gambling review*. Retrieved from Consumer and Business Services website: <https://www.cbs.sa.gov.au/sites/default/files/resource-files/australasian-gambling-review-5th-edn-web.pdf?timestamp=1549253806331>

Dennis, M. L., Perl, H. I., Huebner, R. B., & McLellan, A. T. (2000). Twenty-five strategies for improving the design, implementation and analysis of health services research related to alcohol and other drug abuse treatment. *Addiction*, 95(Suppl. 3), S281–308.

Dowling, N. A., Smith, D., & Thomas, T. (2005). Electronic gaming machines: Are they the ‘crack-cocaine’ of gambling? *Addiction*, 100, 33–45.

Dowling, N. A., Youssef, G. J., Jackson, A. C., Pennay, D. W., Francis, K. L., Pennay, A., & Lubman, D. I. (2016). National estimates of Australian gambling prevalence: Findings from a dual-frame omnibus survey. *Addiction*, 111, 420–435. doi:10.1111/add.13176

Ferris, J. A., & Wynne, H. J. (2001). *The Canadian Problem Gambling Index: User manual*. Toronto, ON: Canadian Centre on Substance Abuse.

Gainsbury, S. (2014). Review of self-exclusion from gambling venues as an intervention for problem gambling. *Journal of Gambling Studies*, 30, 229–251. doi:10.1007/s10899-013-9362-0

Gainsbury, S., Hing, N., & Suhonen, N. (2013). Professional help-seeking for gambling problems: Awareness, barriers and motivators for treatment. *Journal of Gambling Studies*, 30, 503–519. doi:10.1007/s10899-013-9373-x

Gainsbury, S., Jakob, L., & Aro, D. (2018). Understanding end-user perspectives to enhance perceived value uptake of harm-minimization tools: Considering gambler’s

views of a pre-commitment system. *International Gambling Studies*, 18, 22–38. doi:10.1080/14459795.2017.1370723

Gainsbury, S., Russell, A., Blaszczynski, A., & Hing, N. (2015). Greater involvement and diversity of Internet gambling as a risk factor for problem gambling. *European Journal of Public Health*, 25, 723–728. doi:10.1093/eurpub/ckv006

Gainsbury, S., Russell, A., Hing, N., Wood, R., Lubman, D. I., & Blaszczynski, A. (2014). The prevalence and determinants of problem gambling in Australia: Assessing the impact of interactive gambling and new technologies. *Psychology of Addictive Behaviors*, 28, 769–779. doi:10.1037/a0036207

Gaming Machines Regulation 2010 (NSW) s. 3.4 (Austl.). Retrieved from <https://www.legislation.nsw.gov.au/#/view/regulation/2010/476/full>

Gavriel-Fried, B., & Rabayov, T. (2017). Similarities and differences between individuals seeking treatment for gambling problems vs. alcohol and substance use problems in relation to the progressive model of self-stigma. *Frontiers in Psychology*, 8. doi:10.3389/fpsyg.2017.00957

Griffiths, M., Hayer, T., & Meyer, G. (Eds.). (2009). *Problem gambling in Europe*. New York, NY: Springer. doi:10.1007/978-0-387-09486-1

Hancock, L., & Smith, G. (2017). Critiquing the Reno Model I-IV international influence on regulators and governments (2004–2015)— the distorted reality of “responsible gambling.” *International Journal of Mental Health and Addiction*, 15, 1151–1176. doi:10.1007/s11469-017-9746-y

Hayer, T., & Meyer, G. (2011). Self-exclusion as a harm minimization strategy: Evidence for the casino sector from selected European countries. *Journal of Gambling Studies*, 27, 685–700. doi:10.1007/s10899-010-9227-8

Hing, N., & Nuske, E. (2012). The self-exclusion experience for problem gamblers in South Australia. *Australian Social Work*, 65, 457–473. doi:10.1080/0312407X.2011.594955

Hing, N., Nuske, E., Gainsbury, S., & Russell, A. M. T. (2016). Perceived stigma and self-stigma of problem gambling: Perspectives of people with gambling problems. *International Gambling Studies*, 16, 31–48. doi:10.1080/14459795.2015.1092566

Hing, N., & Russell, A. M. T. (2017). How anticipated and experienced stigma can contribute to self-stigma: The case of problem gambling. *Frontiers in Psychology*, 8. doi:10.3389/fpsyg.2017.00235

- Hing, N., Russell, A., Tolchard, B., & Nuske, E. (2015). Are there distinctive outcomes from self-exclusion? An exploratory study comparing gamblers who have self-excluded, received counselling, or both. *International Journal of Mental Health and Addiction*, 13, 481–496. doi:10.1007/s11469-015-9554-1
- Hing, N., Tolchard, B., Nuske, E., Holdsworth, L., & Tiyce, M. (2014). A process evaluation of a self-exclusion program: A qualitative investigation from the perspective of excluders and non-excluders. *International Journal of Mental Health and Addiction*, 12, 509–523. doi:10.1007/s11469-014-9482-5
- James, R. J. E., O'Malley, C., & Tunney, R. J. (2016). Why are some games more addictive than others: The effects of timing and payoff on perseverance in a slot machine game. *Frontiers in Psychology*, 7. doi:10.3389/fpsyg.2016.00046
- Kolandai-Matchett, K., Bellringer, M., Landon, J., & Abbott, M. (2017). A process evaluation of the 'Aware' and 'Supportive Communities' gambling harm-minimisation programmes in New Zealand. *European Journal of Public Health*, 8, 369–376. doi:10.1093/eurpub/ckx120
- LaBrie, R. A., Kaplan, S. A., LaPlante, D. A., Nelson, S. E., & Shaffer, H. J. (2008). Inside the virtual casino: A prospective longitudinal study of actual Internet casino gambling. *European Journal of Public Health*, 18, 410–416. doi:10.1093/eurpub/ckn021
- Ladouceur, R., Blaszczynski, A., Shaffer, H. J., & Fong, D. (2016). Extending the reno model: Responsible gambling evaluation guidelines for gambling operators, public policymakers, and regulators. *Gaming Law Review and Economics*, 20, 580–586. doi:10.1089/gle.2016.2074
- Ladouceur, R., Jacques, C., Giroux, I., Ferland, F., & Leblond, J. (2000). Brief communications analysis of a casino's self-exclusion program. *Journal of Gambling Studies*, 16, 453–460. doi:10.1023/A:1009488308348
- Ladouceur, R., Shaffer, P., Blaszczynski, A., & Shaffer, H. J. (2017). Responsible gambling: A synthesis of the empirical evidence. *Addiction Research & Theory*, 25, 225–235. doi:10.1080/16066359.2016.1245294
- Ladouceur, R., Sylvain, C., & Gosselin, P. (2007). Self-exclusion program: A longitudinal evaluation study. *Journal of Gambling Studies*, 23, 85–94. doi:10.1007/s10899-006-9032-6
- Langham, E., Thorne, H., Browne, M., Donaldson, P., Rose, J., & Rockloff, M. (2016). Understanding gambling related harm: A proposed definition, conceptual framework, and taxonomy of harms. *BMC Public Health*, 16. doi:10.1186/s12889-016-2747-0

- Lindorff, M., Jonson, E. P., & McGuire, L. (2012). Strategic corporate social responsibility in controversial industry sectors: The social value of harm minimisation. *Journal of Business Ethics*, 110, 457–467. doi:10.1007/s10551-012-1493-1
- Lo Iacono, V., Symonds, P., & Brown, D. H. K. (2016). Skype as a tool for qualitative research interviews. *Sociological Research Online*, 21(2), 1–15. doi:10.5153/sro.3952
- Loh, C. M., Deegan, C., Inglis, R., & Monroe, G. (2015). The changing trends of corporate social and environmental disclosure within the Australian gambling industry. *Accounting & Finance*, 55, 783–823. doi:10.1111/acfi.12075
- Luo, J. M. (2018). A measurement scale of corporate social responsibility in gambling industry. *Journal of Quality Assurance in Hospitality & Tourism*, 19, 460–475. doi:10.1080/1528008X.2018.1431588
- Markham, F., Young, M., Doran, B., & Sugden, M. (2017). A meta-regression analysis of 41 Australian problem gambling prevalence estimates and their relationship to total spending on electronic gaming machines. *BMC Public Health*, 17(1), 495. doi:10.1186/s12889-017-4413-6
- Mcmillen, J., & Wenzel, M. (2006). Measuring problem gambling: Assessment of three prevalence screens. *International Gambling Studies*, 6, 147–174. doi:10.1080/14459790600927845
- National Health and Medical Research Council (NHMRC). (2007). *National statement on ethical conduct in human research*. Retrieved from <https://www.nhmrc.gov.au/guidelines-publications/e72>
- Nelson, S. E., Kleschinsky, J. H., LaBrie, R. A., Kaplan, S., & Shaffer, H. J. (2009). One decade of self-exclusion: Missouri casino self-excluders four to ten years after enrollment. *Journal of Gambling Studies*, 26, 129–144. doi:10.1007/s10899-009-9157-5
- Nowatzki, N. R., & Williams, R. J. (2002). Casino self-exclusion programmes: A review of the issues. *International Gambling Studies*, 2, 3–25.
- O'Neil, M., Whetton, S., Dolman, B., Herbert, M., Giannopolous, V., O'Neil, D., & Wordley, J. (2003). *Part A - Evaluation of self-exclusion programs in Victoria and Part B - Summary of self-exclusion programs in Australian states and territories*. Melbourne, Australia: Gambling Research Panel.
- Opdenakker, R. (2006). Advantages and disadvantages of four interview techniques in qualitative research. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 7(4), Art. 11.

- Pickering, D., Blaszczynski, A., & Gainsbury, S. M. (2018). Multi-venue self-exclusion for gambling disorders: A retrospective process investigation. *Journal of Gambling Issues*, 38. doi:10.4309/jgi.2018.38.7
- Pickernell, D., Keast, R., Brown, K., Yousefpour, N., & Miller, C. (2013). Taking the gamble: Local and regional policy issues of access to electronic gaming machines (EGMs): A case study of Victoria, Australia. *Australasian Journal of Regional Studies*, 19, 274–294.
- Productivity Commission. (2010). *Gambling* (Report no. 50). Retrieved from <http://www.pc.gov.au/inquiries/completed/gambling-2009/report>
- Responsible Gambling Council. (2008). *From enforcement to assistance: Evolving best practices in self-exclusion*. Retrieved from <https://www.responsiblegambling.org/rg-news-research/rgc-centre/research-and-analysis/docs/default-source/research-reports/from-enforcement-to-assistance-evolving-best-practices-in-self-exclusion>
- Responsible Gambling Council. (2016). *Best practices for self-exclusion reinstatement and renewal*. Retrieved from <https://www.responsiblegambling.org/rg-news-research/rgc-centre/insight-projects/docs/default-source/research-reports/insight---best-practices-for-self-exclusion-reinstatement-and-renewal>
- Saunders, B., Sim, J., Kingstone T., Baker, S., Waterfield, J., Bartlam, B., Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, 52, 1893–1907.
- Schrans, T., Schellinck, T., & Grace, J. (2004). *2004 NS VL Self exclusion program process test: Final report*. Nova Scotia Gaming Corporation. Retrieved from [https://www.focalresearch.com/sites/default/files/publications/NS_VLSEP_Final_Report_Jan_11%20\(1\).pdf](https://www.focalresearch.com/sites/default/files/publications/NS_VLSEP_Final_Report_Jan_11%20(1).pdf)
- Shannon, K., Anjoul, F., & Blaszczynski, A. (2017). Mapping the proportional distribution of gambling-related harms in a clinical and community sample. *International Gambling Studies*, 17, 366–385. doi:10.1080/14459795.2017.1333131
- Sutton, J., & Austin, Z. (2015). Qualitative research: Data collection, analysis, and management. *The Canadian Journal of Hospital Pharmacy*, 68, 226–231.
- Svensson, P.-G. (1995). Qualitative methodology in public health research. *European Journal of Public Health*, 5, 72. doi:10.1093/eurpub/5.2.72
- Tanner, J., Drawson, A. S., Mushquash, C. J., Mushquash, A. R., & Mazmanian, D. (2017). Harm reduction in gambling: A systematic review of industry strategies. *Addiction Research & Theory*, 25, 485–494. doi:10.1080/16066359.2017.1310204

Townshend, P. (2007). Self-exclusion in a public health environment: An effective treatment option in New Zealand. *International Journal of Mental Health and Addiction*, 5, 390–395. doi:10.1007/s11469-007-9075-7

Tremblay, N., Boutin, C., & Ladouceur, R. (2008). Improved self-exclusion program: Preliminary results. *Journal of Gambling Studies*, 24, 505–518. doi:10.1007/s10899-008-9110-z

Wang, W., Fu, Y., Qiu, H., Moore, J. H., & Wang, Z. (2017). Corporate social responsibility and employee outcomes: A moderated mediation model of organizational identification and moral identity. *Frontiers in Psychology*, 8. doi:10.3389/fpsyg.2017.01906

Wohl, M. J. A., & Wood, R. T. A. (2015). Is gambling industry-funded research necessarily a conflict of interest? A reply to Cassidy (2014). *International Gambling Studies*, 15, 12–14. doi:10.1080/14459795.2014.997270

Wynne, H. (2003). *Introducing the Canadian Problem Gambling Index*. Edmonton, AB: Wynne Resources. Retrieved from https://www.researchgate.net/profile/Harold_Wynne/publication/228460062_Introducing_the_Canadian_problem_gambling_index/links/0046351472fee04668000000/Introducing-the-Canadian-problem-gambling-index.pdf

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Are General and Activity-Specific PGSI Scores Consistent?

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Abstract

Gambling research has highlighted substantial activity-specific differences in gambling behaviours, but measures of problem gambling remain non-specific. This paper aims to examine the consistency of general versus activity-specific Problem Gambling Severity Index (PGSI) scores among a sample of moderate-risk and problem gamblers in Québec, Canada. Correlations and *t* tests were conducted to examine associations and differences between general and activity-specific PGSI scores. Results were analyzed by number of activities reported and activity rank for lottery, video lottery terminals (VLTs), and slot machines and suggested that PGSI scores may not accurately reflect problem gambling severity for all specific activities. General and activity-specific PGSI scores were more highly correlated when lottery was the primary activity, whereas for VLTs, scores were highly correlated regardless of number or rank of activities. General PGSI scores were significantly higher than activity-specific scores for lottery, but general and activity-specific scores were not significantly different for VLTs, demonstrating that the PGSI is a better indicator of activity-specific scores for some forms of gambling over others. Researchers conducting population surveys should exercise caution in assigning general PGSI scores to specific activities.

Keywords: gambling, problem gambling, Problem Gambling Severity Index, activity-specific, assessment, lottery, video lottery terminals, slot machines

Résumé

La recherche sur le jeu a mis en évidence des différences majeures dans les comportements de jeu spécifiques à des activités, mais les mesures du jeu problématique demeurent non spécifiques. L'étude vise à examiner la cohérence entre les scores généraux de l'indice de gravité du jeu problématique (IGJP) et ceux propres à des

activités parmi un échantillon de joueurs à risque modéré et de joueurs compulsifs en [province, pays]. Des corrélations et des tests de Student ont été effectués pour examiner les associations et les différences entre les scores IGJP généraux et ceux spécifiques à des activités. Analysés en fonction du nombre d'activités déclarées et du classement des activités de loterie, d'appareils de loterie vidéo (ALV) et de machines à sous, les résultats laissent entendre que les scores IGJP pourraient ne pas refléter avec précision la gravité du jeu pathologique en ce qui concerne des activités particulières. Dans le cas où la loterie était l'activité principale, les scores IGJP généraux et ceux propres à l'activité étaient très fortement corrélés; pour les appareils de loterie vidéo, les scores étaient fortement corrélés, quels que soient le nombre ou le classement des activités. En ce qui concerne la loterie, les scores IGJP généraux étaient largement plus élevés que les scores propres à l'activité, mais ils n'étaient pas très différents dans le cas des ALV, ce qui démontre que l'IGJP est un meilleur indicateur seulement pour certaines formes de jeu. Les chercheurs qui mènent des enquêtes auprès de la population doivent faire preuve de prudence lorsqu'ils attribuent des scores IGJP généraux à des activités spécifiques.

Introduction

Gambling research has highlighted substantial activity-specific differences in gambling behaviours, but standard measures of problem gambling remain non-specific, failing to account for potential variations in problem gambling assessment between activities. To derive activity-specific gambling outcomes, studies have assigned general problem gambling scores to groups who report that they exclusively, or even non-exclusively, participate in a specific form of gambling. To date, no research has critically assessed the ability of problem gambling assessment tools to accurately describe activity-specific outcomes.

The Problem Gambling Severity Index (PGSI) is currently considered a gold standard assessment tool for the evaluation of problem gambling (Ferris & Wynne, 2001). Given its popularity and commonplace use, evaluating its capacity to adequately capture problem gambling for specific activities is of vital interest. The quantitative subsection of the Canadian Problem Gambling Index, the PGSI is a nine-item continuous scale widely used in Canadian and international population surveys to assess problem gambling severity (Currie, Hodgins, & Casey, 2013; Ferris & Wynne, 2001; Patton, Brown, Dhaliwal, Pankratz, & Broszeit, 2002; Romild, Volberg, & Abbott, 2014; Smith & Wynne, 2002; Wenzel, McMillen, Marshall, & Ahmed, 2004; Wiebe, Single, & Falkowski-Ham, 2001). The standardized items assess gambling-related problems through questions regarding gambling behaviours and potential negative consequences (Currie et al., 2013; Ferris & Wynne, 2001). Although previous research has demonstrated that the PGSI has strong validity and

reliability, it has yet to be validated for the assessment of activity-specific problem gambling (Currie et al., 2013; Wynne, 2003).

Research has repeatedly shown that gambling patterns and problems vary greatly according to the type and number of activities, as well as gambling-specific contextual factors such as location of venue, availability, and accessibility (Binde, 2011; Binde, Romild, & Volberg, 2017; Calado & Griffiths, 2016; Costes, Kairouz, Monson, & Eroukmanoff, 2018; Kairouz, Nadeau, & Paradis, 2011; Kairouz, Paradis, & Monson, 2015; Stevens & Young, 2010). Studies have found associations between specific types of gambling activities and problem gambling. Binde (2011) reported that across problem gambling prevalence surveys, electronic gambling machines (EGMs), casino, Internet, and unregulated gambling were consistently the four forms of gambling found to be most strongly associated with problem gambling, whereas lotteries and instant lotteries were weakly associated. Research has also demonstrated that among exclusive lottery gamblers, the prevalence of problem gambling is significantly lower than that among non-exclusive lottery gamblers (Costes et al., 2018; Holtgraves, 2009; Subramaniam et al., 2016). In addition, it is well established that problem gamblers are more likely to engage in high-risk activities such as EGMs, whereas non-problem gamblers tend to participate in low-risk activities such as lottery (e.g., Lund, 2006). Problem gamblers are also more likely to engage in a larger range of activities (Binde et al., 2017; Kessler et al., 2008) but tend to focus on one primary form of gambling (Breen & Zimmerman, 2002).

Some longitudinal studies have examined the link between participation in specific gambling activities and subsequent development of at-risk and problem gambling (e.g., Reith & Dobbie, 2013; Williams et al., 2015). For example, a recent longitudinal study from Ontario, Canada, demonstrated that continuous forms of gambling with high frequency and levels of reinforcement (e.g., EGMs) were strongly predictive of subsequent problem gambling (Williams et al., 2015). Reith and Dobbie (2013) reported in their qualitative longitudinal study of gambling behaviour that, among individuals whose gambling became more problematic, machine gambling (i.e., EGM) featured more prominently. Examples such as these demonstrate that structural differences between different forms of gambling might result in different patterns of problem gambling development, with the most problematic and addictive gambling activities being those that involve continuous, high-frequency activities with short intervals between stake and payout (e.g., EGMs; e.g., Calado & Griffiths, 2016; Williams et al., 2015).

Although recent research has established the distinct characteristics of specific forms of gambling in relation to the severity of gambling patterns and problems, it remains unclear whether the PGSI is a suitable indicator of gambling-related problems across the full spectrum of gambling activities. It is important to determine whether the PGSI score is equally effective in assessing problems across all types of gambling activities and whether general PGSI scores accurately reflect the severity of problems associated with distinct gambling activities. Thus, this paper aims to examine the consistency between general PGSI scores and scores reported for specific activities

among moderate-risk and problem gamblers. Given that empirical data have repeatedly demonstrated that not all forms of gambling represent the same level of risk for problems, we hypothesized that differences would be found between general PGSI scores and those for specific activities.

Method

Data Sources

Data were derived from the 2009 cross-sectional survey ($N = 11,888$) of the ENHJEU-Québec Survey and are representative of the adult population of Québec, Canada (Kairouz et al., 2011). Details of the ENHJEU-Québec 2009 survey sampling design can be found in depth elsewhere (Kairouz et al., 2011). Participants from the ENHJEU-Québec Survey who reported having gambled, in the past year, more than \$500 CAD or having gambled more than 52 times (excluding lottery), or who felt they had a gambling problem, were asked to complete the PGSI. Those who were identified as moderate-risk (PGSI score of 3–7) or problem gamblers (PGSI score of ≥ 8) were included in this study ($N = 192$).

Study Measures

Respondents were asked to report the following demographic characteristics: age, sex, employment status, marital status, education level, and household income adequacy (calculated by using total gross household income and number of persons living in the household). Participants were asked about their previous 12-month gambling participation for each of the following 11 activities: lottery, bingo, horse racing, slot machines, video lottery terminals (VLTs), poker, table games (excluding poker), keno, sports betting, card games, and games of skill. Respondents who indicated having participated in at least one of the 11 activities were then asked to specify the amount of money spent, over the past 12 months, on each of their gambling activities.

Problem gambling was assessed on the ENHJEU-Québec questionnaire by using the PGSI, which consists of nine items on gambling-related behaviours and consequences (Ferris & Wynne, 2001). Responses were self-reported on a 4-point Likert scale (“never,” “sometimes,” “most of the time,” “almost always”). From the PGSI problem gambling categories, respondents were categorized as either non-problem (score of 0), low-risk (1 or 2), moderate-risk (3–7), or problem gamblers (≥ 8). The PGSI demonstrates strong internal validity and reliability, as well as satisfactory temporal reliability, in both test and re-test samples (Currie et al., 2013; Ferris & Wynne, 2001). After completing the PGSI questionnaire, all moderate-risk and problem gamblers were asked to provide activity-specific answers to all PGSI items for which they gave a positive answer for each of their top three highest spending activities. This generated an overall PGSI score and a separate activity-specific PGSI score for up to three activities, which were ranked as primary, secondary, or tertiary on the basis of spending.

Analyses

Correlations were conducted to examine associations between general and activity-specific PGSI scores. These correlations were analyzed by activity rank and number of activities reported. We conducted *t* tests to compare means of general and activity-specific PGSI scores. Preliminary analyses revealed that lottery, slot machines, and VLTs were the most reported primary, secondary, and tertiary activities. The eight remaining activities were combined into an “other” category. All analyses were performed with Stata statistical analysis software (StataCorp, 2013).

Results

The final sample ($N = 192$) comprised 132 moderate-risk gamblers (PGSI 3–7; 68.8%) and 60 problem gamblers (PGSI ≥ 8 ; 31.2%). The mean age was 50.42, with respondents ranging in age between 19 and 85 years. The final sample consisted of 100 males (52.1%) and 92 females (47.9%). The majority of participants were employed (52.6%), 28.1% were retired, and 19.3% were students, at home, unemployed, or otherwise not employed at the time of the survey. A large proportion of participants were married or in a civil union (43.2%), 28.1% were single or never married, and 28.7% were widowed, separated, or divorced. The educational level of the majority of the sample (65.1%) was high school or less, with 34.9% having more than high school education. For household income adequacy, 16.7% of participants were categorized as low income, 35.1% as lower-middle income, 29.2% as higher-middle income, and 19.1% as high income.

In the past 12 months, the majority (52.9%) of the sample reported gambling on three or more activities, with 30.9% reporting two activities and 16.2% reporting a single activity. Of those who gambled on a single activity, the vast majority (90.3%) gambled on lottery; no individuals reported gambling exclusively on VLTs or slot machines. Lottery remained the most popular activity among those who reported gambling on two activities, and VLTs were the most reported primary activity among gamblers who reported three or more activities. A full breakdown of activities and their ranks can be found in Table 1.

Of the gamblers who reported gambling on a single activity in the past year, 9.7% were problem gamblers, whereas 90.3% were moderate-risk gamblers. Over a quarter (27.1%) of gamblers who reported two activities were problem gamblers and almost three-quarters (72.9%) were classified as moderate-risk gamblers. The group who reported gambling on three or more activities had the highest percentage of problem gamblers (40.2%), as well as 58.8% of moderate-risk gamblers.

Associations Between General PGSI and Activity-Specific Scores

When we compared the activity-specific PGSI scores for all activities combined with the general PGSI scores, results indicated that single-activity scores were highly correlated ($r = .8253$, $p \leq .001$). For gamblers reporting two activities, PGSI scores were highly correlated for primary activities ($r = .8911$, $p \leq .001$), whereas

Table 1
Observations in Sample by Number of Activities and Rank

Number of activities and rank	All activities ^a		Lottery		VLTs		Slot machines		Other ^b	
	<i>n</i>	%	<i>n</i>	% ^c	<i>n</i>	% ^c	<i>n</i>	% ^c	<i>n</i>	% ^c
1 Activity	31	16.2								
Primary	31		28	90.3	0	0	0	0	3	9.7
2 Activities	59	30.9								
Primary	59		23	39.0	10	16.9	15	25.4	11	18.6
Secondary	54 ^d		30	55.6	2	3.7	9	16.7	13	24.1
≥3 Activities	102	52.9								
Primary	101 ^d		27	26.7	42	41.6	12	11.9	20	19.8
Secondary	97 ^d		31	32.0	13	13.4	14	14.4	39	40.2
Tertiary	80 ^d		21	26.3	10	12.5	21	26.3	28	35.0

Note. VLTs = video lottery terminals.

^aActivity-specific Problem Gambling Severity Index (PGSI) scores for all activities combined. ^bAll activities other than lottery, VLTs, or slot machines. ^cRepresents the proportion of each different activity within a specific rank. ^dSome participants reported two or more activities but did not complete the activity-specific PGSI for all activities.

correlations were moderate for secondary activities ($r = .4518$, $p \leq .001$). When three or more activities were reported, correlations remained consistently high; the association for primary activity was highest ($r = .8659$, $p \leq .01$), followed by tertiary ($r = .7097$, $p \leq .001$) and then secondary activities ($r = .6638$, $p \leq .001$). Table 2 includes detailed correlations for each of the specific activities.

Comparison of General and Activity-Specific PGSI Means

When we compared the means of activity-specific PGSI scores for all activities combined with those of general PGSI scores for all activities, the general means were significantly higher regardless of the number of activities or their rank. For single-activity gamblers, the activity-specific mean score for all activities combined ($M = 2.48$, $SD = 3.38$) was significantly lower than the general mean score, $M = 4.61$, $SD = 2.65$, $t(30) = 6.21$, $p \leq .001$. For two-activity gamblers for all activities combined, the general means for primary activities were also significantly lower ($M = 6.85$, $SD = 5.56$) than activity-specific means, $M = 5.25$, $SD = 5.75$, $t(58) = 4.62$, $p \leq .001$. In addition, the mean general PGSI score ($M = 7.11$, $SD = 5.74$) was significantly higher than the activity-specific mean, $M = 2.61$, $SD = 4.54$, $t(53) = 6.04$, $p \leq .001$, for secondary activities for gamblers who reported two activities. For those reporting three or more gambling activities, when all activities were combined, activity-specific PGSI scores were also lower for all ranks. For the primary activity, the general mean was 8.06 ($SD = 5.44$) and the activity-specific mean was 6.37, $SD = 5.53$, $t(100) = 5.99$, $p \leq .001$; for the secondary activity, the general mean was 8.08 ($SD = 5.48$) and the activity-specific mean was 3.93, $SD = 4.95$, $t(96) = 9.51$, $p \leq .001$; and for the tertiary activity, the general mean was 7.76 ($SD = 5.05$) and the activity-specific mean was 3.54, $SD = 5.54$, $t(79) = 9.31$, $p \leq .001$. Regarding specific

Table 2

Correlation Between General and Activity-Specific PGSI Scores by Number of Activities and Rank

Number of activities and rank	All activities ^a		Lottery		VLTs		Slot machines	
	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>
1 Activity								
Primary	31	.8253***	28	.8278***	--	--	--	--
2 Activities								
Primary	59	.8911***	23	.6877***	10	.9788***	15	.6605**
Secondary	54	.4518***	30	.4102*	2	^b	9	.3896
≥ 3 Activities								
Primary	101	.8659**	27	.8669***	42	.8877***	12	.7974**
Secondary	97	.6638***	31	.4413*	13	.9557***	14	.6495*
Tertiary	80	.7097***	21	.6052**	10	.9308***	21	.9076***

Note. PGSI = Problem Gambling Severity Index; VLTs = video lottery terminals.

^a Activity-specific PGSI scores for all activities combined. ^b $n < 5$; non-publishable results.

* $p \leq 0.05$. ** $p \leq 0.01$. *** $p \leq 0.001$.

activities, *t* tests showed that the consistency between means of general and activity-specific PGSI scores fluctuated, depending on the number and rank of specific activities. For detailed results broken down by activity type and rank, see Table 3.

Discussion

This paper aimed to assess whether the PGSI accurately reflects the level of severity of problems experienced with specific forms of gambling. With few exceptions, our findings demonstrate adequate levels of correlation between general and specific PGSI scores. Given that this is a type of test-retest scenario that uses the same form of assessment, correlations would be expected to be high and differences in means small. However, our findings highlight important variations in the associations and the convergence between general and activity-specific PGSI scores observed when the number and rank of specific activities is considered. Overall, the PGSI seems adequate to assess problem gambling severity for primary activities but is less accurate in capturing the reality of gambling patterns for secondary activities. For tertiary activities, the PGSI is more accurate, especially for VLTs and slot machines. This increased consistency for gamblers who report participation in three or more activities reflects the fact that this group is distinct; it includes a higher proportion of problem gamblers who are likely to have higher scores across all activities. The analyses performed for this study also yielded two notable trends.

Lottery

Lottery gambling was pervasive within this sample. Of the three main activities examined, lottery was the only single, or exclusive, reported activity. These findings

Table 3
Results of *t* tests Between General and Activity-Specific PGSI Scores by Number of Activities and Rank

Number of activities and rank	All activities ^a (<i>N</i> = 192)				Lottery (<i>n</i> = 187)				VLTs (<i>n</i> = 119)				Slot machines (<i>n</i> = 84)			
	General <i>M</i> (<i>SD</i>)	Specific <i>M</i> (<i>SD</i>)	<i>df</i>	<i>t</i>	General <i>M</i> (<i>SD</i>)	Specific <i>M</i> (<i>SD</i>)	<i>df</i>	<i>t</i>	General <i>M</i> (<i>SD</i>)	Specific <i>M</i> (<i>SD</i>)	<i>df</i>	<i>t</i>	General <i>M</i> (<i>SD</i>)	Specific <i>M</i> (<i>SD</i>)	<i>df</i>	<i>t</i>
1 Activity																
Primary	4.61 (2.65)	2.48 (3.38)	30	6.21***	4.68 (2.79)	2.64 (3.51)	27	5.46***	--	--	--	--	--	--	--	--
2 Activities																
Primary	6.85 (5.56)	5.25 (5.75)	58	4.62***	4.83 (2.64)	2.65 (2.57)	22	5.06***	14.90 (7.40) ^b	14.00 (7.41) ^b	91	1.87 ^b	6.20 (4.26)	4.80 (3.67)	14	1.64
Secondary	7.11 (5.74)	2.61 (4.54)	53	6.04***	8.13 (6.84)	2.23 (5.14)	29	4.85***	--	--	--	--	7.11 (3.37)	5.00 (4.09)	8	1.52
≥3 Activities																
Primary	8.06 (5.44)	6.37 (5.53)	100	5.99***	6.19 (4.21)	3.52 (4.02)	26	6.50***	9.71 (5.90)	9.17 (5.56)	41	1.29	10.08 (6.82)	7.67 (6.60)	11	1.96
Secondary	8.08 (5.48)	3.93 (4.95)	96	9.51***	8.94 (6.02)	2.65 (4.47)	30	6.15***	7.54 (4.79)	6.31 (4.39)	12	3.12**	6.14 (3.06)	3.57 (2.47)	13	4.04**
Tertiary	7.76 (5.05)	3.54 (5.54)	79	9.31***	6.52 (4.34)	1.19 (2.91)	20	7.05***	7.70 (6.95)	4.90 (7.09)	9	3.38**	9.48 (5.55)	7.62 (6.85)	20	2.88**

Note. PGSI = Problem Gambling Severity Index; VLTs = video lottery terminals.

^a Activity-specific PGSI scores for all activities combined. ^b *n* < 5; non-publishable results.

****p* ≤ .01. ***p* ≤ .001.

align with previous studies that have consistently demonstrated lottery gambling is popular and that many people gamble on this activity exclusively (Costes et al., 2018; Subramaniam et al., 2016). Because lottery gamblers are the majority of single-activity gamblers in this sample, it is perhaps unsurprising that fewer problem gamblers were observed in this group, as previous research has found that lottery gamblers are less likely to be problem gamblers (Subramaniam et al., 2016).

For lottery gamblers, general and activity-specific PGSI scores were more highly correlated when lottery was the primary activity regardless of how many activities were reported. There was a higher correlation for lottery as the tertiary activity in the case of three or more activities. Mean differences between general and activity-specific PGSI scores for lottery were much greater than were those for VLTs and slot machines. Significant mean differences were observed across all numbers and ranks of activity for lottery. In all cases, the activity-specific mean was significantly lower than the general PGSI score means. There were notable shifts between PGSI categories within these results. For example, when lottery was a secondary activity, means decreased from an average that would be categorized as problem gambling to a low-risk categorization. This is an important finding, given that these scores were highly correlated; yet, results suggest that general PGSI scores overestimate lottery-specific problem gambling severity. As a result, participants who are categorized as problem gamblers may in reality not demonstrate the same level of gambling-related problems in their lottery-specific experiences. Although average general PGSI scores for lottery gamblers were all in the moderate-risk and problem gambling range, lottery-specific scores, on average, were almost all in the low-risk gambling range. This aligns with previous research that has demonstrated that lottery does not seem to be a high-risk activity, even in multiple activity scenarios (Binde, 2011; Costes et al., 2018).

These large mean differences and moderate correlations between general and activity-specific scores when lottery is not the only gambling activity reported may be the result of the general PGSI capturing behaviours from other activities. Yet, for exclusive lottery gambling, the general and activity-specific PGSI scores would be expected to be nearly perfectly correlated and statistically similar, given that it is the same activity being reported at both times. Thus, our results may seem surprising, but they also align with previous research indicating that gamblers do not tend to conceive of their lottery-specific gambling as problematic (e.g., Costes et al., 2018). Differences between general and activity-specific scores for exclusive lottery gamblers could also be due, in part, to legacy effects from previous gambling patterns (even with other activities). These results clearly indicate that lottery is a distinct form of gambling that might require particular assessment in comparison with other forms of gambling. Public health officials and policy makers should be aware that administering the PGSI may not capture the reality of lottery-specific gambling-related problems and might be creating noise when grouped with other forms of gambling, such as VLTs and slot machines, in population surveys.

Electronic Gambling Machines

VLT scores were highly correlated regardless of number or rank of activities. VLTs represented the most consistent pattern of correlations of all activities examined. These findings are further highlighted by the mean difference results. For VLTs, mean differences were less significant than they were for lottery. Differences in VLT scores were even non-significant when VLTs were reported as the primary activity. These results could perhaps be explained by the fact that VLT gambling is associated with a much higher prevalence of problem gambling patterns. VLTs are known to be a high-risk activity (Binde, 2011; Lund, 2006) and this activity might inflate general scores. This may indicate that VLT gambling experiences influence an individual's general score over other activities. When VLTs were reported as secondary or tertiary activities, activity-specific scores were lower than general scores. On average, the difference in means for VLTs did not represent a change in classification between moderate-risk and problem gambling PGSI categories (as seen with lottery).

Slot machines presented a high variance in correlations. In terms of mean differences, slot machines exhibited a similar pattern to VLTs in which the mean general PGSI scores were similar to specific PGSI scores, except when slot machines were the secondary or tertiary activity among three or more activities. These results should be interpreted with caution because of the small sample sizes of slot machine gamblers.

Limitations

There are several limitations to this study that should be taken into consideration when interpreting results. The filter applied in identifying the subsample analyzed did not consider several potential factors, such as the spending patterns of respondents on certain activities in comparison with other activities. This sample consisted only of moderate-risk and problem gamblers. Future research should consider activity-specific PGSI outcomes across all levels of problem gambling severity. The size of the moderate-risk and problem gambling population sampled was small and results should therefore be interpreted with caution. The variability in our results is potentially limited by the fact that participants responded only to activity-specific PGSI items that they had previously endorsed on the general PGSI. Scores were thus more likely to decrease than to increase; however, the possibility of indicating higher scores on particular items remained. There is also a potential issue of bias, given that the data were self-reported and participants may have been more or less forthcoming about some activities than about others.

In future research, investigators should consider replicating these analyses for activity-specific scores in which the activities are chosen based on factors such as popularity, frequency, and time spent on each activity. Potential differences between different types of lottery gambling should also be considered, as well as whether specific PGSI questions can be identified that are more highly correlated with specific item endorsement on the basis of activity. Research has already shown differences between low-risk, moderate-risk, and problem gambling populations and that specific items are correlated differently with specific subpopulations (Binde, 2011). In future,

there may be a need to develop standardized tools to assess activity-specific problem gambling or assessment tools specific to high- and low-risk activities. Our findings may indicate a need for instruments that are more focused than the PGSI, as well as for continued activity-specific research.

Conclusion

To date, this was the first study to investigate activity-specific PGSI scores compared with general PGSI scores in a moderate-risk and problem gambling sample. Our results suggest that general PGSI scores might not be an accurate reflection of an individual's problem gambling severity across all activities. The general PGSI score is not consistent with an activity-specific score for lottery but seems to be a better indicator of activity-specific scores for VLTs. The PGSI was more effective in capturing problem gambling severity for primary gambling activities and for gamblers who engage in three or more activities. Researchers conducting population surveys should exercise caution in assigning general PGSI scores to specific activities.

References

- Binde, P. (2011). *What are the most harmful forms of gambling? Analyzing problem gambling prevalence surveys* (CEFOS Working Paper No. 12). Retrieved from University of Gothenburg website: https://www.utbildning.gu.se/digitalAssets/1327/1327132_cefos-wp12.pdf
- Binde, P., Romild, U., & Volberg, R. A. (2017). Forms of gambling, gambling involvement and problem gambling: Evidence from a Swedish population survey. *International Gambling Studies*, 17, 490–507. doi:10.1080/14459795.2017.1360928
- Breen, R. B., & Zimmerman, M. (2002). Rapid onset of pathological gambling in machine gamblers. *Journal of Gambling Studies*, 18, 31–43. doi:1050-5350/02/0300-0031/0
- Calado, F., & Griffiths, M. D. (2016). Problem gambling worldwide: An update and systematic review of empirical research (2000–2015). *Journal of Behavioral Addictions*, 5, 592–613. doi:10.1556/2006.5.2016.073
- Costes, J.-M., Kairouz, S., Monson, E., & Eroukmanoff, V. (2018). Where lies the harm in lottery gambling? A portrait of gambling practices and associated problems. *Journal of Gambling Studies*, 34, 1293–1311. doi:10.1007/s10899-018-9761-3
- Currie, S. R., Hodgins, D. C., & Casey, D. M. (2013). Validity of the Problem Gambling Severity Index interpretive categories. *Journal of Gambling Studies*, 29, 311–327. doi:10.1007/s10899-012-9300-6
- Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report*. Retrieved from Canadian Consortium for Gambling Research website: www.ccgr.ca/en/projects/resources/CPGI-Final-Report-English.pdf

Holtgraves, T. (2009). Evaluating the Problem Gambling Severity Index. *Journal of Gambling Studies*, 25, 105–120.

Kairouz, S., Nadeau, L., & Paradis, C. (2011). *Portrait of gambling in Quebec: Prevalence, incidence and trajectories over four years*. Retrieved from Concordia University website: <https://www.concordia.ca/content/dam/artsci/research/lifestyle-addiction/docs/projects/enhjeu-q/ENHJEU-QUEBEC-Report-28-April-2011-Final.pdf>

Kairouz, S., Paradis, C., & Monson, E. (2015). Does context matter? A multilevel analysis of gambling settings among undergraduates. *Addiction Research & Theory*, 23, 518–527. doi:10.3109/16066359.2015.1059826

Kessler, R. C., Hwang, I., LaBrie, R., Petukhova, M., Sampson, N. A., Winters, K. C., & Shaffer, H. J. (2008). DSM-IV pathological gambling in the National Comorbidity Survey Replication. *Psychological Medicine*, 38, 1351–1360. doi:10.1017/S0033291708002900

Lund, I. (2006). Gambling and problem gambling in Norway: What part does the gambling machine play? *Addiction Research & Theory*, 14, 475–491. doi:10.1080/16066350600836825

Patton, D., Brown, D., Dhaliwal, J., Pankratz, C., & Broszeit, B. (2002). *Gambling involvement and problem gambling in Manitoba*. Retrieved from University of Calgary website: https://prism.ucalgary.ca/bitstream/1880/47599/1/FinalGamblingReport_Full_.df

Reith, G., & Dobbie, F. (2013). Gambling careers: A longitudinal, qualitative study of gambling behaviour. *Addiction Research and Theory*, 21, 376–390. doi:10.3109/16066359.2012.731116

Romild, U., Volberg, R., & Abbott, M. (2014). The Swedish Longitudinal Gambling Study (Swelogs): Design and methods of the epidemiological (EP-) track. *International Journal of Methods in Psychiatric Research*, 23, 372–386. doi:10.1002/mpr.1449

Smith, G. J., & Wynne, H. J. (2002). *Measuring gambling and problem gambling in Alberta using the Canadian Problem Gambling Index (CPGI): Final report*. Retrieved from University of Calgary website: https://prism.ucalgary.ca/bitstream/1880/1626/1/gambling_alberta_cpgi.pdf

StataCorp. (2013). Stata Statistical Software: Release 13 [Computer software]. College Station, TX: Author.

Stevens, M., & Young, M. (2010). Who plays what? Participation profiles in chance versus skill-based gambling. *Journal of Gambling Studies*, 26, 89–103. doi:10.1007/s10899-009-9143-y

Subramaniam, M., Tang, B., Abidin, E., Vaingankar, J. A., Picco, L., & Chong, S. A. (2016). Sociodemographic correlates and morbidity in lottery gamblers: Results from a population survey. *Journal of Gambling Studies*, 32, 291–305. doi:10.1007/s10899-015-9534-1

Wenzel, M., McMillen, J., Marshall, D., & Ahmed, E. (2004). *Validation of the Victorian Gambling Screen*. Retrieved from Australian National University website: https://openresearch-repository.anu.edu.au/bitstream/1885/45190/3/WholeVicGamScr_03.pdf

Wiebe, J., Single, E., & Falkowski-Ham, A. (2001). *Measuring gambling and problem gambling in Ontario*. Retrieved from Responsible Gambling Council website: <http://www.responsiblegambling.org/rg-news-research/rgc-centre/research-and-analysis/docs/research-reports/measuring-gambling-and-problem-gambling-in-ontario>

Williams, R. J., Hann, R. G., Schopflocher, D., West, B., McLaughlin, P., White, N., ... Flexhaug, T. (2015). *Quinte longitudinal study of gambling and problem gambling*. Retrieved from University of Lethbridge website: <https://www.uleth.ca/dspace/handle/10133/3641>

Wynne, H. (2003). *Introducing the Canadian Problem Gambling Index*. Edmonton, AB: Wynne Resources.

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When Losing Money and Time Feels Good: The Paradoxical Role of Flow in Gambling

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Abstract

Despite being well-known for its positive consequences, the psychological state of flow has raised some concerns. In this research, we advanced our understanding of the relationships that flow has in the context of online gambling. Across two studies, in which participants played blackjack and slots, we demonstrated that flow is associated with an increase in the amount of time spent gambling. Flow is also related to an increase in the amount of money spent. We demonstrated that the reason that flow increases the amount of playing time is that its inherently enjoyable nature makes it difficult to stop. We also tested the alternative hypothesis that this relationship occurs because in flow, people lose track of time. Although flow is related to losing track of time, that does not mediate the relationship with playing time. Lastly, we demonstrated that despite losing more money and spending more time while gambling, those who experienced flow had more enjoyable experiences overall, creating a counterintuitive and potentially dangerous situation for gamblers. A secondary goal of this research was to explore ways in which to protect consumers from this paradox. We used warning messages and on-screen interruptions to potentially thwart flow. However, both tactics were ineffective. We discuss the implications for future research and practice.

Keywords: flow, time, money, online gambling

Résumé

Bien qu'il soit connu pour ses conséquences positives, l'état de fonctionnement psychologique optimal (state of flow) suscite certaines inquiétudes. Dans cette recherche, nous approfondissons notre compréhension des relations propres à cet état qui s'établissent dans le contexte du jeu en ligne. Dans deux études dans lesquelles les participants ont joué au blackjack et à des machines à sous, nous avons

démontré que l'état optimal est associé à une augmentation du temps passé à jouer. Cet état psychologique est également lié à une augmentation des dépenses. Nous démontrons la raison pour laquelle l'état optimal augmente le temps de jeu, notamment sa nature intrinsèquement agréable qui rend un arrêt difficile. Nous avons également testé l'autre hypothèse selon laquelle cette relation est due au fait que, dans cet état optimal, les gens perdent le contrôle du temps. Bien que cet état soit lié à la perte de la notion du temps, cela ne modifie pas la relation avec le temps de jeu. Enfin, nous démontrons que malgré la perte d'argent et la perte de temps au jeu, ceux qui vivent une expérience optimale au jeu ont eu des expériences plus agréables dans l'ensemble, créant une situation contre-intuitive et potentiellement nocive pour les joueurs. Un objectif secondaire de cette recherche est d'explorer les moyens de protéger les consommateurs de ce paradoxe. Nous avons utilisé des messages d'avertissement et des interruptions à l'écran pour tenter d'entraver l'état optimal, en vain. Ces deux tactiques se révèlent inefficaces. Nous abordons les répercussions pour la recherche et la pratique futures.

General Introduction

Flow is a rewarding psychological state of deep but seemingly effortless involvement in an experience (Engeser & Rheinberg, 2008). In flow, people experience a loss of self-consciousness, a distorted perception of time, and a sense of control (Csikszentmihalyi, 2000). Flow has been shown to elicit high levels of both enjoyment and performance across a wide variety of contexts, including sports (Jackson, Martin, & Ecklund, 2008), video games (Jegers, 2007; Sweetser & Wyeth, 2005), and work (Debus, Sonnentag, Deutsch, & Nussbeck, 2014). Flow is best known for its positive consequences regarding happiness and its potential to contribute to overall well-being (Fredrickson, 2001).

Our research was concerned with the outcomes of flow in the context of online gambling. In gambling contexts, a number of critical factors are common in facilitating flow, including clear goals, immediate reinforcement, reduced distractions, and perceptions of control (Griffiths, 1999; Harrigan & Dixon, 2009). These factors make gambling, especially the experience of online gambling (Griffiths, 2003; Moreau, Chabrol, & Chauchard, 2016), a context that is highly conducive to flow (Schull, 2005). Multiline slot machines also foster flow, as they have a unique ability to elicit an outcome that is referred to as a loss disguised as a win (LDW; Dixon, Harrigan, Sandhu, Collins, & Fugelsang, 2010; 2014; Harrigan, Dixon, MacLaren, Collins, & Fugelsang, 2011). By reinforcing a player with the gain of credits on a spin, but fewer overall credits, LDWs allow for more frequent perceived gains. These outcomes also create a “smoother” experience for the player, which seems to promote the absorbing state of flow (Schull, 2012).

Despite the many positive consequences of flow, its absorbing state while one is gambling has elicited concern. Research has suggested that experiencing flow while gambling is related to problem gambling status and depression (Dixon et al., 2014, 2017). Although different from dissociative states in several important ways, the absorbing aspect of flow has been compared to having the same attraction as dissociative states do (Wanner, Ladouceur, Auclair, & Vitaro, 2006), which gives gamblers the ability to escape the realities of their day-to-day lives (Abbot & Volberg, 1996; Cartmill, Slatter, & Wilkie, 2015; Getty, Watson, & Frisch, 2000). Multiline games appear to be especially dangerous for players with gambling-related pathology because of the allure of absorption (Dixon et al., 2014; Templeton, Dixon, Harrigan, & Fugelsang, 2015).

As a result of flow's association with negative outcomes, authors have used the term "dark flow" (Dixon et al., 2017, 2019) to refer to it in gambling contexts. This term is motivated by research that demonstrates that there can be a dark side to flow (Partington, Partington, & Olivier, 2009). We sought to extend these findings by providing empirical support for more dangerous consequences of flow in gambling. In particular, we explored the negative relationship between flow and the amount of money and time spent while gambling, as these relationships have yet to be demonstrated. We examined this relationship across two studies in the contexts of online slot machines and online blackjack.

Beyond exploring whether flow has negative consequences, a primary motivation of this research was to demonstrate why flow can be dangerous. The extant literature offers two potential mechanisms for its danger. Flow has two primary components: fluency and absorption (Engeser & Rheinberg, 2008). The fluency component is related to the inherent enjoyment and perceived ease of progress in an experience. Fluency is epitomized by the seemingly effortless progression towards a goal, which can be fostered by positive reinforcement. The absorption element is related to feeling "one" with the task and losing track of everything else around you. The latter component is the result of having a high degree of mental devotion (attentional resources) to a specific stimulus.

The two components of flow offer two potential explanations for its relationship with spending too much time while gambling. The fluency component of flow, which helps make it intrinsically rewarding (Webster, Trevino, & Ryan, 1993), could enhance the pull to continue, making it difficult to stop, despite how much money and time is being spent. The intrinsically rewarding nature of flow could make it dangerous in the gambling context because the consumer is enjoying the flow state, which downplays the concurrent loss of time and money. This possibility is consistent with work that has focused on the reinforcement pattern that drives the danger of LDWs. This danger is based on the continuous reinforcement and smooth experiences that are created as a result of playing multiple lines and being reinforced with sights, sounds, and money gains in small portions (Schull, 2005). The increased amount of smaller but more frequent reinforcement thus facilitates the fluency aspect of flow. We hypothesized that flow creates a pull to continue, which in turn increases the

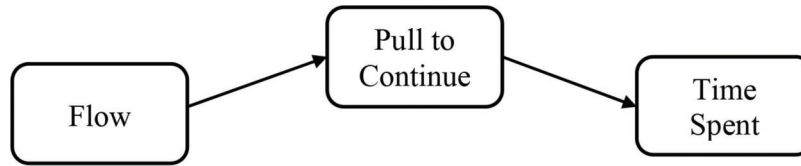


Figure 1. Flow mediation model.

amount of time spent gambling. We tested this relationship in both studies (see our model in Figure 1).

Hypothesis 1: Flow increases the pull to keep playing, which mediates an increase in the amount of time spent playing.

The alternative explanation is that the absorption element of flow distorts perceptions of time (Martin & Jackson, 2008), which can lead to spending more time gambling. Such distortion is dangerous while gambling because it allows time to pass beyond awareness, similar to the danger of dissociative states (Noseworthy & Findlay, 2009). Distorted perceptions of time can increase the amount of time spent gambling because an individual's ability to stop is compromised, while also potentially increasing the amount of money spent, beyond the awareness of the person playing (Schull, 2005). This aspect of flow in which there is a narrowing of attention is similar to the effects of dissociative states in which players lose track of everything else going on around them (Diskin & Hodgins, 1999). For a review of the similarities and differences between flow and dissociation, see Wanner et al. (2006).

Despite the potential for distorted time perceptions to increase the amount of time spent gambling, we do not suggest that it is the underlying reason that drives the relationship with flow. Flow distorts perceptions of time, as it is a defining characteristic of flow, but the role of time distortion as a mediator in the amount of time spent gambling is not compelling when compared with the positive aspects of flow and the desire it creates to keep playing. If flow makes gambling pleasantly enjoyable, it does not seem as reasonable that losing track of time is why people in flow keep playing for longer—it is because they want to. As a result, we did not formally hypothesize that time distortion is a mediator. However, given the relevance of time distortion, we tested for this alternative explanation in both studies.

Regarding the amount of money spent, we did not consider a process-related hypothesis because the potential mediators (i.e., the pull to continue and losing track of time) may not have direct relationships with money spent. The pull to continue should increase the amount of time spent, but this is not necessarily related to the amount of money lost. Losing track of time is not the same as losing track of money spent. Unlike time, flow is unlikely to lead to a loss of focus on how much money has been won or lost. In fact, flow may encourage greater awareness of wins and losses because they are direct features of how one is performing. Being engaged in the gambling experience means that one is in tune with reinforcements such as the amount of money won or lost. We hypothesized that flow is a direct contributing

factor to someone losing money because of the inherent enjoyment in flow, which could make people more likely to keep playing after small losses. We tested this direct relationship in both studies.

Hypothesis 2: Flow has a positive relationship with the amount of money lost.

The Present Studies

Across two studies, we explored flow's relationship with the amount of time and money spent gambling. We explored these relationships within the contexts of online slot machines and online blackjack. Beyond exploring the potentially dangerous consequences of flow, we also sought to mitigate them. If flow is related to spending more time and money, that would create an unfair situation for consumers, whose decision making would be compromised by flow. The well-being of gambling consumers is part of the gambling providers' responsibilities and should be managed (Carroll, 1979). We explored ways that organizations can work to mitigate the negative effects of flow, without eliminating flow completely (Suchman, 1995).

Study 1: Flow and Online Slots

The primary goal of Study 1 was to provide preliminary support for Hypothesis 1, that experiencing flow while gambling will increase the pull to keep playing, which will increase the amount of time spent. To provide additional support for this mediator and its positive nature, we wanted to examine how flow is related to positive affect in this context. We suggest that those in flow are enjoying the experience, and so despite spending more time and money, they should have stronger positive affect, which is a dangerous paradox for consumers. We also sought to evaluate the alternative mechanism that those in flow lose track of time, which does not allow them to properly manage when to stop playing. The secondary goal was to provide support for Hypothesis 2 that flow will have a positive relationship with the amount of money spent.

An additional goal of this study was to determine ways to thwart flow and mitigate its dangers for consumers. To do so, we used warning messages and information that is currently used by a number of organizations to protect consumers. Warning messages and information can be given before or during gameplay. For example, in Massachusetts, the GameSense program has been created to educate gamblers about possible misconceptions or irrational beliefs. On their website, the program gives gamblers tips such as "Take breaks, and set a time limit when you gamble. Clear your mind!" (Massachusetts Gaming Commission, 2018). The Ontario Lottery and Gaming Corporation (OLG) has used an awareness campaign with the tag line "know your limit, play within it" to encourage responsible gaming (OLG, 2010). Warning messages are also used during gameplay, with warnings given in pamphlets or on screen. For example, facts about the independence of spins are also often put on slot machines so that the information is available during play. We tested the effectiveness of warnings in thwarting flow's negative consequences.

Method

Participants and procedure. Participants ($N = 229$ CrowdFlower workers, $M_{\text{age}} = 32.89$ years, 47.6% male) were asked to play an online slot machine game for as much time as they wanted. They gambled for 318.35 s (5 min and 18 s) on average. CrowdFlower is an online crowdsourcing site that has emerged as a data collection alternative to Amazon's Mechanical Turk. Founded in 2007, CrowdFlower boasts a large customer base (including eBay, Microsoft, etc.). It sources its workforce from a number of different channel partners (such as ClixSense, InstaGC), who perform tasks such as transcription, sentiment analysis, content moderation, and more. Participants were told that they would be playing slots for an additional payment and that their final ledger balance would be used to determine whether they won. To control for the amount of money spent, we instructed participants to play the auto-bet of 200 on each spin, which also controlled how many lines they played on each spin. Playing the auto-bet of 200 allowed the slot machine game to provide LDWs. An illustration of the gameplay screen can be found at <http://casinogamesonnet.com/?game=fruit-bonanza&id=809>.

To determine the degree to which flow could be managed by messaging, we presented participants with one of three messages on their computer screen before they started playing, or with a no-message control. One of the messages was a warning about flow, what it is, and its potential danger. The other two messages sought to draw attention to the ledger balance as a means to pull participants out of flow. One message asked participants to focus on the gains that they were making, while the other message asked them to focus on the losses they were incurring (see the Appendix for the messages).

Measures. Flow, our independent variable, was measured after the gambling experience with the flow questionnaire, which provides a dichotomous (yes/no) assessment (Csikszentmihalyi & Csikszentmihalyi, 1988). The flow questionnaire provides three quotes that capture what it feels like to be in the flow state and asks if the person experienced what the quotes describe, creating two quasi-experimental conditions of flow (yes/no). For example, one of the three quotes is "I am so involved in what I am doing. I don't see myself as separate from what I am doing" (see the Appendix for all three quotes). To assess the first potential mediator (i.e., difficulty stopping), we used two items that we created, which asked participants, "How strong was the pull to keep playing?" and "How difficult was it to stop playing?" $r(228) = .548$, $p < .001$, on Likert scales from 1 (*not strong/difficult at all*) to 7 (*very strong/difficult*). To assess the second potential mediator that losing track of time increased the amount of time spent playing, we asked participants, "To what degree did you experience the following while gambling: 'I lost track of time'?" on a 7-point Likert scale from 1 (*not at all*) to 7 (*very much so*).

Following the gambling experience, participants were asked to report their final ledger balance as a measure of how much money they spent. Participants all started with \$10,000 virtual dollars, and the final ledger was subtracted from that to see how

much they had won or lost. To assess the amount of time they spent, we used an embedded timer on the screen to see how long it took them to come back after following the link to the study (in seconds). We used the positive items from the Positive and Negative Affect Schedule scale (Watson, Clark, & Tellegen, 1988) to measure positive affect (10 items, $\alpha = .935$). Items were scored on 5-point Likert scales ranging from 1 (*not at all*) to 5 (*extremely*), which asked participants how they felt “right now” and included the following: inspired, determined, excited, interested, enthusiastic, proud, alert, attentive, strong, active. Lastly, we assessed participants’ recall of the warning messages that they were given by asking if they were told to focus on anything while gambling and if they were warned about flow. If they said yes, we asked them to explain what the message said. There were other measures collected for exploratory purposes in this study and Study 2 that are not reported here.

Results and Discussion

The quasi-experimental conditions of flow were analysed independent of the message conditions to determine their relationship with the dependent measures. First, we wanted to examine the relationship between flow and the amount of time spent while testing the two proposed mediators. To do so, we tested the models by running PROCESS Model 4 (Hayes, 2013) with 10,000 bootstrap samples, using percentile confidence intervals (CIs) for both. First, we tested the model that flow would increase participants’ difficulty in stopping play, which would mediate an increase in the amount of time spent gambling. The indirect model from flow to time spent through desire to keep playing was significant, $\beta = 81.31$, $SE = 33.18$, 95% CI [22.7940, 151.9978]. The significance of the indirect path, along with the positive beta values representing the strength of the relationships between flow and the desire to keep playing ($\beta = 1.54$, $SE = .1927$) and between that desire and the amount of time spent gambling ($\beta = 52.79$, $SE = 16.52$), supports mediation and the positive relationship between all of the variables in the model. That is, flow increased the desire to keep playing, which mediated an increase in the amount of time spent playing.

Using the same procedure, we ran a model to test the alternative explanation that those in flow would lose track of time, which is why they spend more time playing and are thus at risk of spending more money. Notably, although we did not predict or demonstrate a main effect of flow on time spent, it is acceptable to theorize and establish only an indirect effect through a mediator (Zhao, Lynch, & Chen, 2010). The indirect model from flow to the amount of time playing with losing track of time as the mediator was not significant, $\beta = 40.85$, $SE = 37.75$, 95% CI [-24.2898, 123.2950]. Flow had a positive relationship with losing track of time, $\beta = 2.08$, $SE = .23$, 95% CI [1.6239, 2.5385]. However, losing track of time did not mediate the relationship. This is because losing track of time had a positive relationship with the amount of time spent, but it did not reach significance, $\beta = 19.6305$, $SE = 13.96$, 95% CI [-7.8778, 47.1388].

We also wanted to determine whether people spent more money if they experienced flow. The results of independent sample t tests revealed that those who experienced flow spent more virtual money, $M_{\text{flow}} = \$3,273.45$, $M_{\text{no-flow}} = \$1,283.47$, $t(194) = 1.99$,

$p = .048$, than those who did not, but despite losing more money, they also felt more positive after their gambling experience ($M_{\text{flow}} = 3.46$) than did those who did not experience flow, $M_{\text{no-flow}} = 2.61$, $t(227) = -7.16$, $p < .001$.

Lastly, we attempted to modify the flow experience with messages before playing. Because the warning messages were included as a means to potentially thwart flow, for the sake of analysis, we focused on their influence on the likelihood of entering flow. Participants were equally likely to enter flow, whether they received a warning about flow, a message to focus on the gains, or a message to focus on the losses, compared with the control condition of no message, $\chi^2(3) = 3.03$, $p = .39$. This suggests that the messages were not sufficient to limit people from entering flow. We also performed additional analyses to ensure that the warning messages did not influence the other dependent measures. The results of one-way analyses of variance of message condition on the amount of money spent, time spent, difficulty stopping, and positive affect were all non-significant. Regarding recall, 37.5% of people in the gains condition correctly recalled that they were asked to focus on gains, 45.3% in the loss condition correctly recalled that they were asked to focus on losses, and 78.18% who were given information about flow successfully recalled that this was the content of their warning message.¹

In Study 1, we demonstrated that those who experienced flow perceived it to be more difficult to stop playing, which mediated an increase in the amount of time they spent gambling. Although we suggest that difficulty in stopping is positive in nature, related to the desire to keep playing, it is possible to conceive that the difficulty in stopping could be driven by something else, such as chasing losses. Although we did not measure enjoyment during the experience per se, the underlying desire to keep playing is likely driven by enjoyment of the experience because of its positive relationship with flow, which is inherently enjoyable (Csikszentmihalyi, 1975). Moreover, this alternative explanation does not fit with these findings, as chasing losses would be inherently negative and should not be related to flow. We sought to provide further support for this by examining the correlation between the pull to continue and positive affect. The results demonstrate that the pull to continue had a significant positive correlation with positive affect, $r(229) = .325$, $p < .001$, which is consistent with our explanation, but less so with the explanation that it is driven by chasing losses.

Those who experienced flow also spent more money than those who did not. Counterintuitively, despite spending more virtual money, those who experienced flow also felt more positive after the gambling experience. We also failed to thwart flow with three different messages before the gambling experience. A key finding from Study 1 is that flow also led people to lose track of time, and, although it had a positive relationship with the amount of time spent, losing track of time did not

¹This may in part be because the questions were last among the set. The results reported include every participant, but they revealed the same conclusions when we selected only those who successfully recalled the specific message given.

mediate the relationship between flow and the amount of time spent playing. Our measure of losing track of time was asking people whether they “lost track of time,” which may be problematic if people do not have a good sense of when they lose track of time. To address this, we performed a post hoc test with a more direct measure of distorted time perception.

In addition to measuring losing track of time in the main study, in the post hoc test, we assessed it by measuring how long participants gambled by using an embedded timer and asking them to “provide us with your best guess of how long you were gambling for.” We asked them to provide their guess in minutes and seconds. After converting their guesses into seconds, we subtracted them from how much time they actually took for our measure of distorted time perception.

In addition to showing that the new measure does not mediate the relationship between flow and time spent gambling, we also sought to demonstrate that the subjective measure that we used in the main study reliably captures perceived time distortion. To do so, we performed a post hoc test from the same population of participants as in Study 1 ($N = 115$ CrowdFlower panellists, $M_{\text{age}} = 40.17$, 52.2% male). We used the same stimuli as in the main study, which asked participants to gamble with an online slot machine for as long as they wanted for a chance to win additional payment. Following the gambling experience, we measured subjective distortion of time in the same way as in the main study, using the question “I lost track of time” on a 7-point Likert scale from 1 (*not at all*) to 7 (*very much so*). We also included the new measure of time perception distortion as explained above with the discrepancy between perceived and actual time spent gambling (in seconds) as our measure. We assessed flow in the same way as in the main study, using the flow questionnaire, which provides a yes/no answer as to whether individuals experience flow or not (Csikszentmihayli and Csikszentmihayli, 1988).

The results of the independent samples t tests regarding losing track of time between those who experienced flow ($N = 48$) and those who did not ($N = 67$) were statistically significant with both measures. Those who experienced flow felt as though they had lost track of time relative to those who did not experience flow when we used the measure from the main study, $M_{\text{flow}} = 4.83$, $M_{\text{no flow}} = 2.66$, $t(113) = 7.84$, $p < .001$. Their guesses of how much time had transpired were also further off from the actual amount of time that had transpired, $M_{\text{flow}} = 162.21$ s, $M_{\text{no flow}} = 34.88$ s, $t(113) = 3.41$, $p = .001$. Notably, the two measures were significantly and positively correlated, $r(115) = .251$, $p = .007$.

The results of mediation analysis with PROCESS Model 4, with flow leading to the new measure of time distortion for how much time participants spent gambling, revealed that the measure of time distortion did not mediate the amount of time they spent gambling, $B = 4.23$, $SE = 15.26$, 95% CI [-20.97, 38.82]. Together, these findings support the use of our subjective measure of time distortion in the main study, while also providing additional support that distorted time perceptions do not mediate the relationship between flow and the amount of time people spend gambling.

Study 2: Flow and Online Blackjack

Study 2 had two primary goals: (a) to replicate the mediation results of Study 1 in a different gaming context (online blackjack) and (b) to test a new strategy to manage flow. We also sought to demonstrate the negative influence of flow on the amount of money spent as a result. Participants ($N = 62$ undergraduate students, $M_{\text{age}} = 20$ years, 70.5% male) were asked to play blackjack online for as long as they wanted.

Method

Participants and Procedure. Participants gambled for 592.64 s (9 min and 32 s) on average. They were paid \$10, \$5 of which was guaranteed payment and an additional \$5 was to be used gambling. The \$5 given to participants was converted to \$20,000 in virtual currency.² As in Study 1, flow was measured after the gambling experience, creating two additional quasi-experimental conditions.

Given the inability of the messages to thwart flow in Study 1 prior to play, we sought to increase the strength of the interruption in the gambling experience in Study 2. To do so, we used pop-up messages during play as opposed to the messages given before playing (Auer, Malischnig, & Griffiths, 2014). Participants either had a message pop-up on the screen every minute stating, “you have been playing for another minute, it is currently X o’clock,” or they played as normal without interruption. The pop-up message would disappear on its own after 6 s or if the player hit a button on the keyboard. Online blackjack screen can be viewed here: <https://www.online-casinos.co.uk/best-blackjack-software-providers/>.

Measures

All variables, including flow, positive affect (Watson et al., 1988; 10 items, $\alpha = .906$), and the mediators of difficulty stopping, $r(62) = .617$, $p < .001$, and losing track of time, were measured the same way as in Study 1. Each participant started with \$200,000, and their final ledger was subtracted from this to determine money spent. We assessed the interruption manipulation by asking participants whether a pop-up message came up on the screen (yes/no); if they answered yes, we asked them to report what it said.

Results and Discussion. To test mediation, we started with the model that flow increased the desire to keep playing, which increased the amount of time spent gambling. We ran PROCESS Model 4 with 10,000 bootstrap samples by using

²All variables, including flow, positive affect (Watson et al. 1988; 10 items, $\alpha = .906$), and the mediators of difficulty stopping, $r(62) = .617$, $p < .001$, and losing track of time were measured the same way as in Study 1. Each participant started with \$200,000 and their final ledger was subtracted from this to determine money spent. We assessed the interruption manipulation by asking participants whether a pop-up message came up on the screen (yes/no); if they answered yes, we asked them to report what it said.

percentile CIs (Hayes, 2013). The indirect model from flow to time spent through the desire to keep playing was significant, $\beta = 84.57$, $SE = 40.35$, 95% CI [28.7320, 195.9576]. This result, along with the positive valence of the relationships between flow and the desire to keep playing ($\beta = 1.38$, $SE = .37$) and between that desire and the amount of time spent playing ($\beta = 61.09$, $SE = 22.49$), shows that flow increased the desire to keep playing, which mediated an increase in the amount of time spent playing.

In the same way as in Study 1, we sought to provide further support of the positive nature of the mediator and against the alternative that it is driven by chasing losses. As in Study 1, the pull to continue had a significant positive correlation with positive affect, $r(62) = .309$, $p = .015$, which is consistent with our explanation of it being driven by the pleasant experience of flow and not from chasing losses.

We then tested the alternative model, that flow made people lose track of time, which mediated an increase in the amount of time spent gambling. The indirect model from flow to time spent through the desire to keep playing was not significant, $\beta = -6.67$, $SE = 15.66$, 95% CI [-61.34, 9.32]. Flow had a positive relationship with losing track of time but it was not significant, $\beta = .68$, $SE = .63$, 95% CI [-.58, 1.94]. Losing track of time had a non-significant relationship with the amount of time spent playing, $\beta = -9.80$, $SE = 14.08$, 95% CI [-37.98, 18.38].

As in Study 1, those who experienced flow also spent more money ($M_{\text{flow}} = \$54,970.59$) than did those who did not experience flow, $M_{\text{no-flow}} = \$5,205.36$, $t(60) = .70$, $p = .49$, although the association was not significant. This is in part due to the large amount of variance in the final ledgers ($SD_{\text{flow}} = \$291,414$, $SD_{\text{no-flow}} = \$266,722$) that resulted from participants being allowed to bet whatever they wanted, creating a wider range of values. As in Study 1, an independent samples t test on positive affect revealed that despite spending more money, those who experienced flow felt more positive following the gambling experience ($M_{\text{flow}} = 3.29$) than those who did not, $M_{\text{no-flow}} = 2.85$, $t(60) = -2.13$, $p = .037$.

Independent samples t tests between those who had warning messages interrupt their play and those who did not on each of the key dependent measures were all non-significant, suggesting that the pop-up interruptions were ineffective. Eighty percent of people in the interruption condition were able to identify that there was a pop-up message and correctly recall the content of the warning message (i.e., identified that it was about the amount of time played). We used a chi-square test of independence to determine whether the likelihood of entering flow was related to whether participants had the pop-up message and it was not significant, $\chi^2(1) = 1.04$, $p = .31$. This finding suggests that the flow state is impervious to small pop-ups and would require a significant interruption to thwart it.

General Discussion

In this research, we explored the psychological state of flow and its negative consequences for consumers in the contexts of online slot machines and online

blackjack, respectively. We provide support for the relationship between flow and increased time spent gambling. We demonstrate that flow increased the pull to continue, which increased the amount of time spent gambling, and provide evidence that the pull to continue is positive in nature, which we suggest is driven by the enjoyable nature of flow. We also provide evidence that flow led people to lose track of time, but that this did not mediate the amount of time they spent gambling, despite the positive relationship.

These findings build on the existing literature by showing a dangerous new negative outcome of flow. By providing empirical support for the mechanism underlying this relationship, our research also offers a foundation for future research to build on in an effort to mitigate its dangers. Our data suggest that it is not the lack of ability to keep track of time, but rather the enjoyable nature of the flow experience that mediates the amount of time spent gambling. In fact, we demonstrate that despite spending more time and money, those in flow had a more positive experience overall. This finding, along with the supported mechanism of the desire to keep playing, contributes to the literature's discussion of the dangers of flow in gambling, as it demonstrates that the positive benefits (i.e., enjoyment) are inherently linked to its negative outcomes (i.e., spending more time).

Our study also showed mixed support for the relationship between flow and the amount of money spent. In Study 1, participants who were in flow spent more money gambling on the online slot machines. However, in Study 2, despite participants' spending more money playing online blackjack, the difference was not significant. This can likely be attributed to the highly variable nature of the game and the bets that can be made.

Our findings related to consumers' inability to regulate the amount of time and money they spend while in flow contributes to the literature by extending knowledge about the various dangers of flow in the gambling context. In particular, our findings extend concerns about flow to slot machines, where the danger of flow has been largely depicted to result from LDWs (e.g., Dixon et al., 2017). Our data show that online blackjack provides enough reinforcement to facilitate flow. Our findings, which are based on two different groups of participants, demonstrate potentially unfair and dangerous circumstances for all gamblers. These findings extend consideration for situations in which gamblers could be considered to be in danger (Blaszczynski et al., 2011; LaPlante, Gray, LaBrie, Kleschinsky, & Shaffer, 2012).

We also attempted to thwart the negative outcomes of flow by using warning messages (Study 1) and pop-up interruptions (Study 2). In Study 1, we provided messages before play related to focusing on the money lost, the amount of money won, and the dangers of flow. Interestingly, none of the messages were able to thwart flow. In Study 2, we sought to thwart flow by having a message pop up on the screen to remind players of how much time they had spent to help interrupt the experience. However, this also failed to significantly reduce flow experienced while gambling.

The findings related to the inability to mitigate flow with these tactics contribute to the discussion related to the shortcomings of current practices of corporate social responsibility in the gambling industry (Hing, 2001). Warning messages are often used to mitigate negative consequences in gambling, such as “Know your limit, play within it,” which is the tag line used by the Ontario Lotto and Gaming Corporation (OLG, 2010), and “Play it safe: play with limits,” which is used by an online gambling service (Royal Panda, 2018). In our studies, we warned participants of flow immediately before the experience, without effect. This suggests that tag lines used in advertisements about being careful about how much a person spends are likely to be rendered ineffective, as flow takes over while gambling, despite awareness.

Interestingly, despite spending more time and money, participants who experienced flow in our studies had a stronger positive affect than those who did not. These findings have both practical and theoretical implications (Dixon et al., 2019). It is a mandate of lottery and gaming organizations around the world to provide fair and high-quality gaming experiences (e.g., <https://massgaming.com/>). Our findings demonstrate the value of flow in this context, which gaming organizations can use to better understand their value proposition to consumers. That is, organizations can have a better understanding of how they create a positive perception in the minds of their stakeholders through flow. As we imply, this value can be used in strategic legitimization processes (Suchman, 1995), allowing organizations to reframe issues (Fiol, 1994) by highlighting the positive and socially desirable aspects of their service offerings.

Our findings open the door and call for future research related to the effects of flow in gambling and how to manage them. The lack of ability to shut off flow in this context is something future research should examine, as it will become dangerous when people are betting large amounts and when they are gambling for extended periods of time. Some ideas beyond the online context should also be explored. For example, in poker, which is an important context to explore, as it is associated with pathological gambling and overspending (Mihaylova, Kairouz, & Nadeau, 2012), perhaps increasing the amount of time that a dealer is switched out or how often a break must be taken can limit the dangers of flow, while allowing players to still experience flow during the game, but for less time. Social presence would also be an interesting line of inquiry in order to examine how it influences flow in the gambling context relative to other consumption (Pfund et al., 2018). Perhaps social presence can facilitate flow while winning, but thwart flow while losing, as participants would feel shame in losing money in front of others.

From a practical perspective, another method to control the negative outcomes of flow would be to have predetermined betting levels (Hing, 2001). Some examples of this have started to emerge in the market. For example, in Massachusetts, gamblers can use a tool called PlayMyWay, which allows players to set daily, weekly, or monthly budgets for themselves at the Plainridge Park Casino. This method would allow participants to enjoy the task and experience flow while also minimizing the potential negative consequences of how much money they lose.

The other aspect of this research that opens an interesting line of inquiry is the positive aspects of flow. In our studies, consumers had a more positive experience despite spending more time and money, but there is likely a moderator of this relationship and a boundary condition where spending money is no longer associated with more fun. In our studies, participants gambled a relatively small amount of money, which is a boundary condition of the findings. We expect that after a certain amount of money is lost, the relationship with positive affect would be thwarted. However, we also suggest that after a certain amount of losses, it would not be a flow experience, as gamblers would be worried rather than engaged with the task. Future research should explore this relationship with greater amounts of money and individual factors that influence the degree to which positive affect and flow can be sustained despite losing money. Relatedly, future research should also theorize and explore whether flow has an overall negative or positive impact on gamblers and gambling providers on the basis of the nuanced role that has been established in this research.

There are limitations to our subjective recall measures of flow, which may seem linked to the inability of our participants to recall the warning manipulations. Although self-report is an established way to measure flow, research should further explore the physiological aspects of flow to provide new measures that may be more reliable (Keller, Ringelhan & Blomann, 2011). However, people appear to have a good idea as to whether or not they are in flow, as the scales to measure it capture what it feels like to be in it. Our participants showed a limited ability to remember the warning manipulations, which is interesting because the increased attention and resources devoted to the gambling experience seem to limit the ability to process anything else. Future research should explore this relationship between flow and the memory of information provided beforehand, given the high demands on resources within flow. We suggest that because of the level of attention paid towards the flow experience itself, memory in flow may not be limited, but may in fact be enhanced. This is also a fruitful area for future research.

One of our studies was from a crowdsourced sample. There are potential limitations to using these samples, including those related to attention and diversity (Peer, Brandimarte, Samat, & Acquisti, 2017). Although we balanced these potential sample limitations with a study of undergraduate students, future research should endeavour to explore these relationships with regular gamblers and problem gamblers to examine whether there are nuances across different groups. We showed consistent results across both samples related to how flow influences the amount of time spent gambling, but the influence of flow on money may differ, depending on prior experience with gambling and income levels.

The paradox of positive and negative consequences of flow in gambling is perhaps most notable in the context of virtual reality gambling. This type of gambling has been predicted to grow drastically in the coming years, along with many other virtual reality applications (Kharpal, 2016). Virtual reality is a controlled context that is highly conducive to experiencing flow, which could exacerbate its negative outcomes,

especially given the removal from the real world, which attracts problem gamblers. However, researchers have also suggested that virtual reality has positive uses for responsible gambling, as it can be used in the treatment of problem gambling (Bouchard et al., 2017). We suggest that researchers focus on the virtual reality context so that consumers are fully aware of the dangers and are protected from them before they play.

References

- Abbott, M. W., & Volberg, R. A. (1996). The New Zealand national survey of problem and pathological gambling. *Journal of Gambling Studies*, 12, 143–160.
- Auer, M., Malischnig, D., & Griffiths, M. (2014). Is “pop-up” messaging in online slot machine gambling effective as a responsible gambling strategy? *Journal of Gambling Issues*, 29, 1–10. doi:10.4309/jgi.2014.29.3
- Blaszczynski, A., Collins, P., Fong, D., Ladouceur, R., Nower, L., Shaffer, H. J., Venisse, J. L. (2011). Responsible gambling: General principles and minimal requirements. *Journal of Gambling Studies*, 27, 565–573.
- Bouchard, S., Robillard, G., Giroux, I., Jacques, C., Loranger, C., St-Pierre, M., . . . Goulet, A. (2017). Using virtual reality in the treatment of gambling disorder: The development of a new tool to practice cognitive behaviour therapy. *Frontiers in Psychiatry*, 8(27). doi:10.3389/fpsy.2017.00027
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, 4, 497–505.
- Cartmill, T., Slatter, T., & Wilkie, B. (2015). The role of anxiety and dissociation in young Australian gamblers. *Journal of Gambling Studies*, 31, 1215–1226.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety: Experiencing flow in work and play*. San Francisco: Jossey-Bass.
- Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety: Experiencing flow in work and play*. San Francisco, CA: Jossey-Bass.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. (1988). *Optimal experience: Psychological studies of flow in consciousness*. Cambridge, England: Cambridge University Press.
- Debus, M. E., Sonnentag, S., Deutsch, W., & Nussbeck, F. W. (2014). Making flow happen: The effects of being recovered on work-related flow between and within days. *Journal of Applied Psychology*, 99, 713–722.

- Diskin, K. M., & Hodgins, D. C. (1999). Narrowing of attention and dissociation in pathological video lottery gamblers. *Journal of Gambling Studies*, 15, 17–28.
- Dixon, M. J., Gutierrez, J., Stange, M., Larche, C. J., Graydon, C., Vintan, S., & Kruger, T. B. (2019). Mindfulness problems and depression symptoms in everyday life predict dark flow during slots play: Implications for gambling as a form of escape. *Psychology of Addictive Behaviors*, 33, 81–90.
- Dixon, M. J., Harrigan, K. A., Sandhu, R., Collins, K., & Fugelsang, J. A. (2010). Losses disguised as wins in modern multi-line video slot machines. *Addiction*, 105, 1819–1824.
- Dixon, M. J., Harrigan, K. A., Santesso, D. L., Graydon, C., Fugelsang, J. A., & Collins, K. (2014). The impact of sound in modern multiline video slot machine play. *Journal of Gambling Studies*, 30, 913–929.
- Dixon, M. J., Stange, M., Larche, C. J., Graydon, C., Fugelsang, J. A., & Harrigan, K. A. (2017). Dark flow, depression and multiline slot machine play. *Journal of Gambling Studies*, 34, 73–84.
- Engeser, S., & Rheinberg, F. (2008). Flow, moderators of challenge-skill-balance and performance. *Motivation and Emotion*, 32, 158–172.
- Fiol, C. M. (1994). Consensus, diversity, and learning in organizations. *Organization Science*, 5, 403–420.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56, 218–226.
- Getty, H. A., Watson, J., & Frisch, G. R. (2000). A comparison of depression and styles of coping in male and female GA members and controls. *Journal of Gambling Studies*, 16, 377–391.
- Griffiths, M. (1999). Gambling technologies: Prospects for problem gambling. *Journal of Gambling Studies*, 15, 265–283.
- Griffiths, M. (2003). Internet gambling: Issues, concerns, and recommendations. *CyberPsychology & Behavior*, 6, 557–568.
- Harrigan, K. A., & Dixon, M. (2009). PAR Sheets, probabilities, and slot machine play: Implications for problem and non-problem gambling. *Journal of Gambling Issues*, 23, 81–110. doi:10.4309/jgi.2009.23.5
- Harrigan, K., Dixon, M., MacLaren, V., Collins, K., & Fugelsang, J. (2011). The maximum rewards at the minimum price: Reinforcement rates and payback

percentages in multi-line slot machines. *Journal of Gambling Issues*, 26, 11–29. doi:10.4309/jgi.2011.26.3

Hayes, A. F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis. A Regression-Based Approach. 2013. New York: Guilford, 1609182308.

Hing, N. (2001). Changing the odds: A study of corporate social principles and practices in addressing problem gambling. *Journal of Business Ethics*, 33, 115–144.

Jackson, S. A., Martin, A. J., & Eklund, R. C. (2008). Long and short measures of flow: The construct validity of the FSS-2, DFS-2, and new brief counterparts. *Journal of Sport and Exercise Psychology*, 30, 561–587.

Jegers, K. (2007). Pervasive game flow: Understanding player enjoyment in pervasive gaming. *Computers in Entertainment (CIE)*, 5(1), 9. doi:10.1145/1236224.1236238

Keller, J., Ringelhan, S., & Blomann, F. (2011). Does skills–demands compatibility result in intrinsic motivation? Experimental test of a basic notion proposed in the theory of flow-experiences. *The Journal of Positive Psychology*, 6(5), 408–417.

Kharpal, A. (2016, October 10). Virtual reality gambling expected to grow 800 percent by 2021 driven by ‘high rollers.’ *CNBC*. Retrieved from <https://www.cnbc.com/2016/10/10/virtual-reality-gambling-expected-to-grow-800-percent-by-2021-driven-by-high-rollers.html>

LaPlante, D. A., Gray, H. M., LaBrie, R. A., Kleschinsky, J. H., & Shaffer, H. J. (2012). Gaming industry employees’ responses to responsible gambling training: A public health imperative. *Journal of Gambling Studies*, 28, 171–191.

Massachusetts Gaming Commission. (2018). GameSense. Retrieved from <https://gamesensema.com/>

Jackson, S. A., Martin, A. J., & Eklund, R. C. (2008). Long and short measures of flow: The construct validity of the FSS-2, DFS-2, and new brief counterparts. *Journal of Sport and Exercise Psychology*, 30(5), 561–587.

Mihaylova, T., Kairouz, S., & Nadeau, L. (2012). Online poker gambling among university students: Risky endeavour or harmless pastime? *Journal of Gambling Issues*, 28, 1–18. doi:10.4309/jgi.2012.27.15

Moreau, A., Chabrol, H., & Chauchard, E. (2016). Psychopathology of online poker players: Review of literature. *Journal of Behavioral Addictions*, 5, 155–168.

Noseworthy, T. J., & Finlay, K. (2009). A comparison of ambient casino sound and music: Effects on dissociation and on perceptions of elapsed time while playing slot machines. *Journal of Gambling Studies*, 25, 331–342.

Ontario Liquor and Gaming Corporation. (2010). *Responsible gaming: Policies and programs*. Retrieved from http://www.olg.ca/assets/documents/responsible_gaming/policies_and_programs.pdf

Partington, S., Partington, E., & Olivier, S. (2009). The dark side of flow: A qualitative study of dependence in big wave surfing. *The Sport Psychologist*, 23, 170–185.

Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology*, 70, 153–163.

Pfund, R. A., Ginley, M. K., Whelan, J. P., Peter, S. C., Wynn, B. S., Suda, M. T., & Meyers, A. W. (2018). Influence of social interaction on women college students' electronic gambling machine behaviour. *Journal of Gambling Issues*, 38, 237–251. doi:10.4309/jgi.2018.38.12

Royal Panda. (2018). *Responsible gaming*. Retrieved from <https://www.royalpanda.com/responsible-gaming/#play-limits>

Schull, N. D. (2005). Digital gambling: The coincidence of desire and design. *The Annals of the American Academy of Political and Social Science*, 597, 65–81.

Schüll, N. D. (2012). *Addiction by design: Machine gambling in Las Vegas*. Princeton, NJ: Princeton University Press.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20, 571–610.

Sweetser, P., & Wyeth, P. (2005). Gameflow: A model for evaluating player enjoyment in games. *Computers in Entertainment (CIE)*, 3(3), 3–3. doi:10.1145/1077246.1077253

Templeton, J. A., Dixon, M. J., Harrigan, K. A., & Fugelsang, J. A. (2015). Upping the reinforcement rate by playing the maximum lines in multi-line slot machine play. *Journal of Gambling Studies*, 31, 949–964.

Wanner, B., Ladouceur, R., Auclair, A. V., & Vitaro, F. (2006). Flow and dissociation: Examination of mean levels, cross-links, and links to emotional well-being across sports and recreational and pathological gambling. *Journal of Gambling Studies*, 22, 289–304.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology*, 54(6), 1063.

Webster, J., Trevino, L. K., & Ryan, L. (1993). The dimensionality and correlates of flow in human-computer interactions. *Computers in Human Behavior*, 9, 411–426.

Zhao, X., Lynch Jr, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of consumer research*, 37(2), 197-206.

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Appendix

Flow Questionnaire

Please read the following quotes. The questions that follow are based on them.

“My mind isn’t wandering. I am not thinking of something else. I am totally involved in what I am doing. My body feels good. I don’t seem to hear anything else. The world seems to be cut off from me. I am less aware of myself and my problems.”

“My concentration is like breathing: I never think of it. When I start, I really do shut out the world. I am really quite oblivious to my surroundings after I really get going. I think that the phone could ring and the doorbell could ring or the house burn down or something like that. When I start, I really do shut out the world. Once I stop, I can let it back in again.”

“I am so involved in what I am doing. I don’t see myself as separate from what I am doing.”

Study 1 Warning Messages

The gains message asked participants to “focus on the winning spins you have and think about how much money you can make.” The losses message said to “focus on the losing spins you have and how much money you are giving away.”

The flow warning message said, “Flow is a state of being totally immersed in an activity to the degree that you forget about everything else around you and time seems to fly by. Flow can be dangerous when gambling because you can become immersed for too long and not realize how much time and money you have spent on that activity.”

Trends in gambling behavior among college student-athletes: A comparison of 2004, 2008, 2012 and 2016 NCAA survey data

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Abstract

Student-athletes represent a vulnerable subgroup of the college student population with regards to engagement in high-risk behaviours. Four large samples of National Collegiate Athletic Association (NCAA) student-athletes in 2004 ($N = 20,587$), 2008 ($N = 19,942$), 2012 ($N = 22,935$) and 2016 ($N = 22,388$) were surveyed about their gambling behaviours and attitudes. A cross-sectional study was conducted to gain insight into changing gambling behaviours and attitudes among college student-athletes. Findings revealed gender differences in participation rates of gambling with men consistently engaging in all gambling activities at higher rates than women (55% of men versus 38% women in 2016). Despite gender differences, the results suggest that participation rates for most gambling activities have generally decreased over the twelve-year span. The proportion of student-athletes at-risk or meeting criteria for pathological gambling between 2004 and 2016 has also decreased among men (4% in 2004 versus 2% in 2016) while remaining relatively consistent among women (<1% across all years). Furthermore, attitudes towards various forms of gambling appear to have changed over time, with a greater number of student-athletes in 2016 believing that sports wagering is unacceptable and a potentially harmful activity. Taken together, the results suggest that gambling behaviours among student-athletes may be on a downward trend despite the increased accessibility and availability of gambling opportunities.

Keywords: Gambling, problem gambling, college student-athletes, gender

Résumé

En ce qui concerne la participation à des comportements à risque élevé, les étudiants-athlètes représentent un sous-groupe vulnérable de la population des étudiants universitaires. Quatre grands échantillons d'étudiants-athlètes de la National Collegiate Athletic Association (NCAA), 2004 ($N = 20\,587$), 2008 ($N = 19\,942$), 2012 ($N = 22\,935$) et 2016 ($N = 22\,388$), ont été sondés sur leurs comportements et

leurs attitudes de jeu. Une étude transversale a été menée afin de mieux comprendre l'évolution des comportements et des attitudes face au jeu chez les étudiants athlètes. Les résultats ont révélé des différences entre les sexes dans les taux de participation au jeu, les hommes pratiquant systématiquement toutes les activités de jeu à un taux plus élevé que celui des femmes (55 % d'hommes contre 38 % de femmes en 2016). Malgré les différences entre les sexes, les résultats laissent entendre que les taux de participation à la plupart des activités de jeu ont généralement diminué au cours de la période de douze ans. La proportion d'étudiants-athlètes à risque ou satisfaisant aux critères du jeu pathologique entre 2004 et 2016 a également chuté chez les hommes (4 % en 2004 contre 2 % en 2016), tout en restant relativement stable chez les femmes (<1 % pour toutes les années). En outre, les attitudes vis-à-vis des différentes formes de jeu semblent avoir évolué au fil du temps. En 2016, un plus grand nombre d'étudiants-athlètes pensaient que les paris sportifs étaient inacceptables et potentiellement nocifs. Mis ensemble, les résultats suggèrent que les comportements de jeu parmi les étudiants-athlètes pourraient être à la baisse, en dépit de l'accessibilité accrue et de la disponibilité des possibilités de jeu.

Introduction

College students represent one of the largest groups of young adults in the United States (Vespa, 2017), with over 20 million individuals attending colleges or universities in 2017 (National Centre for Education Statistics, 2018). Such students have been reported to engage in a wide range of risky behaviours, including heavy episodic or binge drinking, illicit drug use, cigarette smoking, and gambling (LaBrie, Shaffer, LaPlante, & Wechsler, H., 2003; Laska et al., 2009; Laska, Pasch, Lust, Story, & Ehlinger, 2009; Mohler-Kio, Lee & Wechsler, 2003; Nowak, 2017a; Wechsler, Lee, Kuo, Seibring, Nelson, & Lee, 2002; Weinstock, Whelan, Meyers, & McCausland, 2007). Student-athletes, representing 4% to 25% of the collegiate student body at National Collegiate Athletics Association (NCAA) affiliated institutions (National Collegiate Association, 2018), have also been reported to engage in the above-mentioned risky behaviours (Ellenbogen, Jacobs, Derevensky, Gupta, & Paskus, 2008; Huang, Jacobs, Derevensky, Gupta, & Paskus, 2007a; Huang, Jacobs, & Merensky, 2010; 2011; Weiss, 2010). Estimates suggest that 75% to 80% of college students have gambled within the last year (Barnes, Welte, Hoffman, & Tidwell, 2010; Blinn-Pike, Worthy, & Jonkman, 2007; Lostutter, Lewis, Cronce, Neighbors, & Larimer, 2014), with 6% of college students being identified as pathological gamblers and an additional 10% as problem gamblers (i.e., not yet reaching the clinical criteria for disordered gambler) (Nowak, 2017a). Rates of problem or pathological gambling are similar among student-athletes, ranging from 3% to 15% (Ellenbogen et al., 2008; Engwall, Hunter, & Steinberg, 2004; Huang, Jacobs, Derevensky, Gupta, & Paskus, 2007b).

College students experiencing problems with gambling have been reported to have a substantially decreased academic performance, engage in socially isolating behaviours, experience difficulties in social relationships, and are at heightened risk of suicidal ideation and attempts (Bischof et al., 2015; Black et al., 2015; Petry & Weinstock, 2007; Stinchfield, Hanson, & Olson, 2006). Additional harms associated with problem gambling include mental health symptoms such as anxiety and depression (Martin, Usdan, Cremeens, & Vail-Smith, 2014; Quigley et al., 2015), substance abuse, familial concerns, and financial hardships (Brezing et al., 2010; Neighbors et al., 2015). In addition to the previously mentioned risks, student-athletes may experience further consequences as a result of gambling. NCAA regulations prohibit student-athletes from betting money on any sporting event, with violations of this regulation resulting in an athlete possibly losing his or her athletic eligibility and being subject to other penalties. Furthermore, a concern for the NCAA is the risk of devaluing the integrity of intercollegiate sports by athletes trying to influence the outcome of a game (e.g., match fixing, point-shaving). With significant personal safety issues being associated with placing bets with bookmakers (McComb & Hanson, 2009) and the potential for pernicious gambling scandals (Figone, 2012), it is important to examine gambling-related behaviours among college student athletes.

Reported prevalence rates of past year gambling and problem gambling among college student-athletes have fluctuated over time. To gain insight into student-athlete engagement in gambling activities, the NCAA has been administering surveys to a representative sample of college student-athletes every four years beginning in 2004. Based on the comparable data from the first three surveys (2004, 2008 and 2012), rates of past year and weekly gambling have diminished over time (Sansanwal, Derevensky, & Paskus, 2018; Shead, Derevensky, & Paskus, 2014). Furthermore, the proportion of student-athletes in the combined group of at-risk and probable pathological gamblers also decreased over time among men (4.0% in 2004, 3.8% in 2008, 1.9% in 2012) while remaining constant among women (<1% across all years). Among the different NCAA sports, golfers have been identified as the group of athletes with the highest rates of past year gambling, weekly gambling, and the highest rates of at-risk or probable pathological gambling behaviours. Sansanwal, Derevensky, and Paskus (2018) also found that knowledge and information regarding NCAA policies varied by Division, with Division I athletes receiving more information than their Division II and III counterparts.¹ A comparison of the 2004, 2008, 2012 and the most recent 2016 data could inform researchers on current trends and whether prevalence rates of gambling behaviours are still decreasing.

¹Division I is the highest level of intercollegiate athletics, one which has a larger budget, more elaborate facilities, a greater number of athletic scholarships (Division III athletes do not receive financial aid) and which tends to see more athletes going into the professional rank than Division II and Division III institutions. Division I athletes enjoy a higher number of contests during the year, and are expected to maintain a higher grade point average in their academic courses. What is more, their games are more often televised than those in Divisions II and III.

Various social and environmental factors influence the gambling behaviours of college student-athletes (LaPlante & Shaffer, 2007; Shaffer, LaBrie, & LaPlante, 2004; St.-Pierre, Walker, Derevensky, & Gupta, 2014). As engagement in gambling is becoming increasingly normalized and liberalized, changing perceptions regarding the acceptability of gambling could be influencing rates of gambling participation. Presently, only a limited number of states (e.g., Hawaii and Utah) legally prohibit all forms of gambling (Gambling Law US, 2017), while gambling is generally perceived as a socially acceptable form of entertainment in other states. With the ruling of *Murphy v. National Collegiate Athletic Association (NCAA)* (Murphy v National Collegiate Athletic Association, 2018) allowing for legalized state-sponsored sports betting, clear attempts are being made on a political level to authorize multiple forms of gambling throughout the US. The liberalization of gambling-related regulation can potentially lead young adults to have more permissive and accepting attitudes towards gambling and could increase the likelihood of gambling participation (Salonen, Kontto, Perhoniemi, Alho, & Castrén, 2018).

Of note, college student-athletes may be particularly susceptible to engagement in sport-related gambling behaviours with wagering on sports being one of the most popular forms of gambling in this population (Huang et al., 2007b; Martin, Nelson, & Gallucci, 2016). In addition to betting on individual sporting events, seasonal and daily fantasy sports leagues are becoming increasingly popular. With the integration of fantasy sports online wagering platforms and mobile applications, individuals can now place bets and side wagers on a regular basis. Recent figures from the Fantasy Sports Trade Association (FSTA, 2018) estimate that 57.4 million people participated in fantasy sports in the US and Canada while the percentage of players who participated in daily fantasy sports increased from 31% in 2012 to 64% in 2015. As wagering on sports is becoming increasingly popular, especially among student-athletes, this raises the potential for harm in this population. In a study of college-student athletes, Marchica and Derevensky (2015) reported that among fantasy sport players, 48% of men and 25% of women were categorized as at-risk/PPGs. Additionally, daily fantasy players reportedly gamble more frequently than those not playing daily fantasy, while having a greater number of comorbid psychological problems (Nower, Caler, Pickering, & Blaszczyński, 2018). Given these findings, sports wagering and fantasy sports may be rendering college student-athletes at an even greater risk of problem gambling and its associated consequences.

Although opportunities for gambling have increased dramatically, there has been a downward trend in gambling participation among NCAA college student-athletes from 2004 to 2012 (Sansanwal, Derevensky and Paskus, 2018). Such findings are contrary to the availability or total consumption theory (Abbott, 2006; Edwards et al., 1995; Lund, 2008), which predict that increased availability will lead to increased consumption and a higher proportion of heavy users and associated problems. Instead, these findings are consistent with an alternate explanation proposed by Shaffer (2005), the adaptation hypothesis. The adaptation hypothesis predicts a plateauing of gambling participation and a reduction in problem gambling rates among populations exposed to gambling for extended periods of time (Abbott, 2006;

Public Health Agency of Sweden, 2016; Shaffer & Martin, 2011; Williams, Volberg, & Stevens, 2012). It is possible that as gambling becomes more accessible, college student-athletes may perceive gambling as something less novel and exciting, and as a result, will gamble less frequently while also experiencing lower rates of problems gambling.

The purpose of the present study is to compare the results of the 2004, 2008, 2012 and 2016 NCAA national gambling surveys. Given the significant changes in the availability and accessibility of gambling since 2012 and the increase in the number of people participating in daily fantasy, an updated investigation of student-athlete participation in gambling is necessary. Although preliminary findings comparing these results are represented in an NCAA report (National Collegiate Athletic Association, 2017), this study provides further context and detail to the original report while examining changing trends in overall gambling participation, problem gambling, origins of gambling behaviours and attitudes towards sports wagering behaviours. Results will investigate rates of gambling behaviours by gender, sport played and NCAA Division. While this represents a cross-sectional study, a comparison of these findings will provide insight into how the engagement in various gambling activities and attitudes towards sports wagering have changed over this twelve-year period.

Method

Participants and Procedure

Participants were drawn from the NCAA National Study on Collegiate Wagering, a self-report survey assessing gambling behaviours among US college student-athletes. Prior to data collection, ethical approval was obtained from the NCAA Research Committee and NCAA Research Review Board and from the ethics committees of respective institutions where the surveys were administered. A total of 20,587 valid surveys were administered in 2004, 19,942 in 2008, 22,935 in 2012, and 23,533 in 2016. Demographic characteristics of the sample from each year are presented in Table 1.

A stratified random sampling protocol was incorporated to select teams for participation and to obtain a sufficiently large and representative sample of NCAA student-athletes from all three Divisions and 22 sports. All 1,000+ member colleges of the NCAA were invited to participate with one to three athletic teams within each school being asked to complete the survey. As the study methods guarantee the anonymity of responding student-athletes, their teams and schools, no data are available on an institutional level (i.e., school, school region, school size, response rate). Nevertheless, the school-level response rate was estimated to be greater than 60% based on similar non-anonymized surveys previously conducted by the NCAA using the same methods. Once institutions were identified and sports teams were selected for those schools, faculty athletics representatives (FARs) at each member institution were contacted to assist with survey administration. Each FAR was

Table 1

Demographic characteristics of the samples of college student-athletes

Variable	2004 (%)	2008 (%)	2012 (%)	2016 (%)
Gender				
Men	62	62	57 _a	61 _c
Women	38	38	43 _a	39 _c
Race/Ethnicity				
White	75	72 _a	77 _{ab}	70 _{abc}
Black	15	17 _a	15 _b	14 _b
Other	10	11	8 _{ab}	16 _{abc}
Academic Year				
Freshman	33	35 _a	32 _{ab}	32 _b
Sophomore	26	27	27	27
Junior	23	23	25 _{ab}	26 _{ab}
Senior	19	15 _a	16 _a	15 _a

Note. 2x2 Pearson chi-square tests ($df = 1$) compared the 2004, 2008, 2012 and 2016 sampling distributions of respondents. a = significantly different from 2004 at $p < 0.001$; b = significantly different from 2008 at $p < 0.001$; c = significantly different from 2012 at $p < 0.001$; d = significantly different from 2016 at $p < 0.001$.

provided with a detailed and specific protocol to follow and a script to read, which emphasized the voluntary and anonymous nature of the survey. The surveys were group-administered to all student-athletes aged 18 years or older of a sampled team without coaches or other team personnel present. Following completion, one student was assigned the responsibility of collecting the completed surveys, placing them in a sealed envelope, and mailing the pre-addressed, pre-paid envelope to an independent third-party vendor that compiled and entered the data.

Measures

The 2004, 2008, 2012 and 2016 surveys differed slightly in content. Whereas the 2004 survey collected information on multiple health-risk behaviours (i.e., substance use, sexual activity, criminal activity) in addition to gambling behaviours, the 2008, 2012 and 2016 surveys were instead modified to have a greater focus on gambling behaviours. In all four surveys, student-athletes provided demographic information, and indicated which sport they are playing (choice of 22 sports), which Division they compete in (Division I, II and III), and their respective gambling experiences.

Gambling Participation. All gambling questions referred to student-athletes' behaviours during the past 12 months. Participants were initially categorized as gamblers or non-gamblers based on their responses to the Gambling Activities Questionnaire (GAQ; Gupta & Derevensky, 1996), which asks about frequency of participation in 10 common gambling activities over the past 12 months ("daily," "at least once a week," "at least once a month," "less than once a month," and "not at all"). Individuals reporting no gambling in any form in the past year were categorized as non-gamblers. Those reporting having gambled at least once on any of the activities in the previous year were categorized as gamblers. Additional

questions regarding participation in sports wagering and fantasy sports were asked including “Have you engaged in any of these forms of sports betting for money during the past 12 months?” Responses to this question include “bets on individual games,” “online daily or weekly fantasy sports contests,” and “season-long fantasy sports contests.” Moreover, from 2008 onwards, participants were asked “When did you gamble in any form for money for the first time?” Responses to this question included “before high school,” “high school,” “college,” and “I’ve never gambled for money.” Following this question, participants were asked “When you gambled that first time for money, which of the following did you do?” This question was followed by the gambling activities listed in the GAQ.

Problem Gambling. Gamblers were further divided into three categories based on their responses to a questionnaire format of the DSM-IV-TR (American Psychiatric Association, 2000) criteria for pathological gambling. As the latest edition of the DSM was published in 2013 (DSM-5, American Psychiatric Association, 2013), the 2016 survey included the DSM-IV-TR criteria for pathological gambling to establish consistency between the survey findings. The questionnaire format of the diagnostic criteria (symptoms) used for pathological/disordered gambling contains 10 items including: (1) need to increase wagers to achieve same level of excitement (tolerance); (2) feelings of restlessness or irritability when attempting to cut down or stop gambling (withdrawal); (3) unsuccessful attempts to cut back or stop; (4) preoccupation with gambling; (5) engagement in gambling when feeling distressed; (6) returning to get even after losing money gambling (“chasing” losses); (7) lying to conceal involvement in gambling; (8) jeopardizing significant relationships, employment or schooling because of gambling; (9) borrowing money to pay for gambling debts; and (10) engaging in illegal activities to pay for gambling. Standard cut-off scores for problem gambling categorization were used to group gamblers into three categories of problem gambling. Participants reporting 0–2 symptoms were categorized as social gamblers, those reporting 3–4 symptoms were categorized as at-risk gamblers, and those who endorsed 5 or more symptoms were categorized as probable pathological gamblers (PPGs). This system of categorization has been used in several previous studies (e.g., Shead et al., 2014; Temcheff, Derevensky, & Paskus, 2011). The questionnaire format of the DSM-IV-TR criteria for pathological gambling has been reported as having a strong internal consistency (.92) and an agreement rate (87%) with the South Oaks Gambling Screen (Lesieur & Blume, 1987).

Gambling Knowledge and Attitudes. Student-athletes were asked about their awareness of NCAA rules and regulations regarding gambling and sports wagering. Participants provided a dichotomous “Yes” or “No” answer to whether they had received information on the NCAA rules concerning gambling. Furthermore, student-athletes provided information regarding their general attitudes towards sports wagering and the effectiveness of various initiatives to discourage student-athletes from wagering on sports. Responses were provided on a 5-point scale ranging from “Strongly Agree” to “Strongly Disagree.” Certain of the questions assessing student-athlete attitudes include: “Sports wagering is acceptable so long as

you wager on the sport other than the one in which you participate,” “I think sports wagering is a harmless pastime,” and “If I chose to wager on sports, I could consistently make a lot of money.”

Data Preparation

Responses were reviewed using a series of validity checks and Item Response Theory techniques to identify questionable patterns of response. Responses were excluded from the analyses if strong evidence existed of insincere responses. These cleaning procedures were applied to the 2004, 2008, 2012 and 2016 survey data to enhance comparability. As these cleaning procedures were applied retroactively to the 2004 survey data, the results reported in the present paper are not identical to those previously reported for the same data (Ellenbogen et al., 2008).

Additional procedures were applied to account for differences in sampling strategies and survey content between the 2004 and other surveys. These procedures were aimed at making more accurate comparisons across samples. To account for differences in sampling strategies, we applied a filter to all data sets such that respondents participating in one of 22 sports (11 men’s sports and 11 women’s sports) were adequately sampled in each of the three NCAA Divisions. Furthermore, data from the 2004 survey were weighted to the NCAA’s estimate of 2008 participation rates within the 22 sports to account for differences in sampling proportions within each cohort and to scale the results from both years in relation to current national participation figures. To account for differences in survey content, we applied an additional set of filters to all samples to ensure that problem gambling severity rates were comparable. Participants in all samples were categorized as either non-gamblers, social gamblers, at-risk gamblers, or PPGs based on responses to the GAQ and DSM-IV-TR questionnaires. However, differences in formatting of the surveys necessitated survey-specific methods of filtering out certain participants with missing data.

In the 2004 survey, the GAQ immediately preceded the DSM-IV-TR questionnaire. The DSM-IV-TR questions contained the instruction “If you have not gambled, bet or wagered in any way during the past 12 months, please skip [this section].” Despite this instruction, certain of the participants who reported gambling on the GAQ skipped the DSM-IV-TR as they may not have believed themselves to have problems with gambling. Accordingly, the following four guidelines were employed to filter out and categorize respondents: (1) respondents who missed the GAQ and DSM-IV-TR questions were categorized as missing and were excluded (1.5%); (2) respondents who indicated no gambling in the past year on the GAQ were categorized as non-gamblers, whether or not they completed or skipped the DSM-IV-TR; (3) respondents who indicated any gambling participation on the GAQ in the past year but skipped the DSM-IV-TR were categorized as social gamblers; and (4) all other respondents who indicated gambling participation on the GAQ and who completed the DSM-IV-TR were categorized according to their responses on the DSM-IV-TR.

Whereas the 2004 survey placed the DSM-IV-TR gambling questions immediately following the GAQ, the remaining three surveys placed the DSM-IV-TR questions several sections after the GAQ. This gap between the GAQ and DSM-IV-TR raises the possibility that certain participants might be incorrectly categorized when applying the previous guidelines. The following guidelines were employed to filter out and categorize participants in the 2008, 2012 and 2016 samples: (1) those persons who missed the GAQ or the section preceding the DSM-IV-TR and did not complete the DSM-IV-TR questions were categorized as missing and were excluded; (2) those persons identified as non-gamblers on the GAQ, did not skip the section preceding the DSM-IV-TR, but skipped the DSM-IV-TR were categorized as non-gamblers; (3) those persons who indicated any gambling participation on the GAQ in the past year but skipped the DSM-IV-TR questions, were categorized as a social gamblers; and (4) all others who indicated any gambling participation on the GAQ and who completed the DSM-IV-TR questions were categorized according to their responses on the DSM-IV-TR.

As a result of differences in survey sampling strategies and survey content, comparisons are not available for each item across all surveys. While there are 23 official NCAA sports, comparisons are limited to the 22 sports that were adequately sampled across all 4 survey administrations. After applying all data cleaning and filtering procedures, comparative data were available for 19,354 student-athletes from 2004, 19,371 from 2008, 22,935 from 2012, and 22,388 from 2016.

Data Analysis

The large sample sizes and number of statistical analyses employed greatly increased the possibility of spurious findings. Accordingly, the threshold probability for reporting statistical significance was set at an alpha level of 0.001 rather than the conventional 0.05. Pearson chi-square tests were conducted to compare differences across years using SPSS software. The Phi coefficient (ϕ) (Calkins, 2005), was provided as an index of the strength of association between variables.

Results

Gambling Activities Among Student-Athletes

Male student-athletes. Overall, participation in gambling among male student-athletes decreased over the twelve-year span. In 2016, 55% of men reported engaging in some form of gambling for money in the past year, compared to 57% of men in 2012 ($\chi^2 (1, 26730) = 10.90, p < .001, \phi = .02$), 66% in 2008 ($\chi^2 (1, 27205) = 34.20, p < .001, \phi = .04$), and 71% in 2004 ($\chi^2 (1, 25656) = 697.52, p < .001, \phi = .16$). This overall reduced gambling participation rate was observed across most gambling activities (Table 2). The activity that showed the largest decrease over time was playing cards for money, with 46.8% of men engaging in this activity over the past year in 2004 and 22.9% in 2016 ($\chi^2 (1, 25656) = 1625.05, p < .001, \phi = .25$). Monthly engagement

in playing cards for money on a monthly basis also decreased drastically over the twelve-year span. Furthermore, although rates of past year Internet casino gambling increased from 2004 to 2008 ($\chi^2(1, 24006) = 210.18, p < .001, \phi = .09$), there had been a decrease from 2008 to 2012 ($\chi^2(1, 25080) = 163.5, p < .001, \phi = .08$), and no change from 2012 to 2016 ($p = .01$). A similar pattern of engagement is reported for past month Internet casino gambling. Rates of past year ($p = .014$) and monthly ($p = .082$) sports wagering did not increase in 2016 compared to 2012.

Rates of past year and weekly gambling participation for male college-student athletes across different sports are presented in Figure 1. Overall, rates of past year gambling have continued to decrease for all reported sports. As for rates of weekly gambling, most athletes in different sports indicated a continued decrease or no change from 2012 to 2016. Two male sports indicated an increase in weekly gambling in 2016 compared to 2012; lacrosse ($\chi^2(1, 26730) = 38.49, p < .001, \phi = .04$) and wrestling ($\chi^2(1, 26730) = 29.05, p < .001, \phi = .03$). As for athletes who reported the highest rates of weekly gambling, male golfers indicated the highest rates across all four time points. Regarding gambling rates by Division, rates of past year gambling have continued to decrease since 2004 (Figure 2). Comparing rates of past year gambling between 2012 and 2016, all Divisions indicated a significant decrease in participation (Division 1, $\chi^2(1, 26730) = 56.93, p < .001, \phi = .05$; Division 2, $\chi^2(1, 26730) = 29.87, p < .001, \phi = .03$; Division 3, $\chi^2(1, 26730) = 67.00, p < .001, \phi = .05$). Rates of weekly gambling by Division did not reveal a significant decrease in any of the Divisions since 2012.

Despite the NCAA adopting bylaws that prohibit engagement in gambling activities related to intercollegiate or professional sporting events, sports wagering still appears to be a frequent activity among men. Consistent with results from 2012, wagering on the NFL (65%) was the most common target of sports betting, followed by NCAA

Table 2

Men's participation in various gambling activities in 2004, 2008, 2012 and 2016

Gambling activity	Past year gambling (%)				Monthly gambling (%)			
	2004	2008	2012	2016	2004	2008	2012	2016
Lottery tickets	36.2	31.4 _a	35.2 _{ab}	36.4 _b	11.1	9.1 _a	11.1 _b	10.3 _b
Played cards for money	46.8	45.9	27.4 _{ab}	22.9 _{abc}	20.6	14.3 _a	6.1 _{ab}	5.7 _{ab}
Bet on games of personal skill	39.7	33.1 _a	25.4 _{ab}	23.3 _{abc}	16.3	13.0 _a	9.9 _{ab}	9.5 _{ab}
Bet on horse/dog races	9.8	8.5	6.5 _{ab}	6.3 _{ab}	2.0	1.4	1.5	1.2
Commercial bingo	6.5	6.9	5.3	5 _{ab}	0.9	1.1	1.2	1.3
Gambled in casino	--	22.9	18.7 _b	18.6 _b	--	3.8	3.3	3.2
Internet casino games	6.8	12.3 _a	7.5 _b	6.7 _b	2.8	4.7 _a	1.9 _b	1.8 _b
Shot dice/craps	13.4	11.7 _a	7.8 _{ab}	7.7 _{ab}	4.3	3.9	2.5 _{ab}	2.7 _{ab}
Slot machines	19.8	15.1 _a	11.9 _{ab}	11.8 _{ab}	3.6	2.0 _a	1.8 _a	2.0 _a
Sports wagering	23.5	29.5 _a	25.7 _{ab}	24.4 _b	9.6	9.6	8.3	8.9

Note. 2x2 Pearson chi-square tests ($df = 1$) compared the 2004, 2008, 2012 and 2016 sampling distributions of respondents. a = significantly different from 2004 at $p < 0.001$; b = significantly different from 2008 at $p < 0.001$; c = significantly different from 2012 at $p < 0.001$; d = significantly different from 2016 at $p < 0.001$.

TRENDS IN GAMBLING BEHAVIOUR AMONG STUDENT ATHLETES

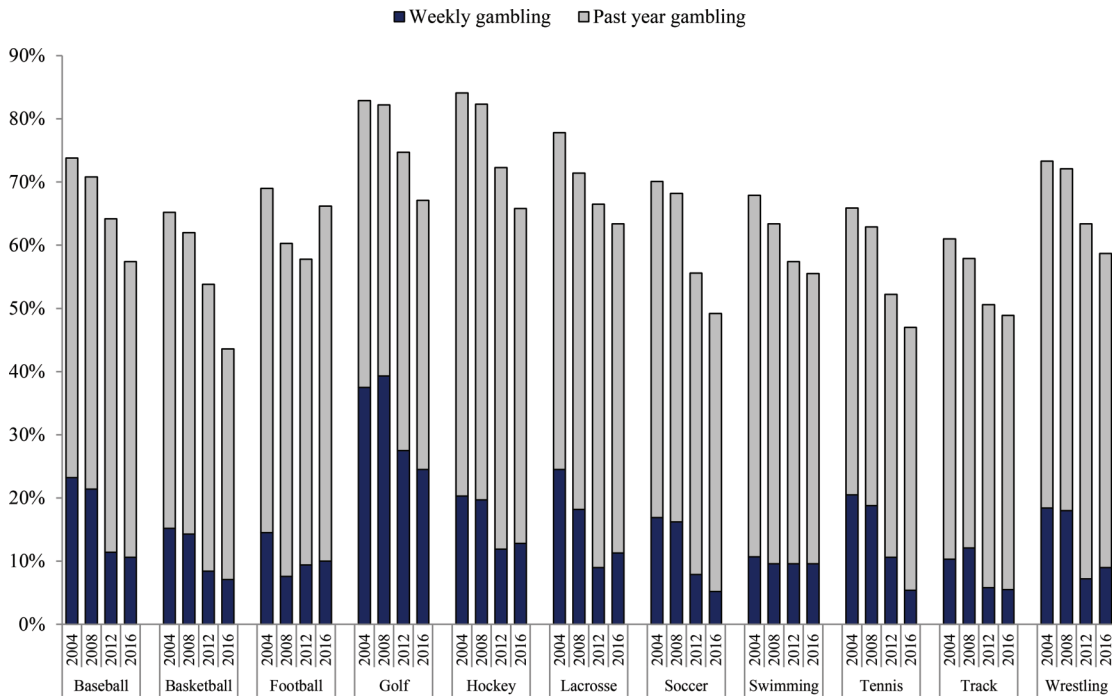


Figure 1. Past year and weekly gambling participation rates among male student-athletes across different sports.

basketball (55%). As for betting on college games, these rates of participation remain low with the lowest level of engagement being present for betting on a college game involving one's own team. In 2016, only 1.4% of men outside of Division I basketball and football bet on their own team, and 2% report betting on another team at their school. Generally, reported rates of betting on one's own team have decreased compared to the highest rates in 2008 ($\chi^2(1, 20531) = 18.52, p < .001, \phi = .03$). However,

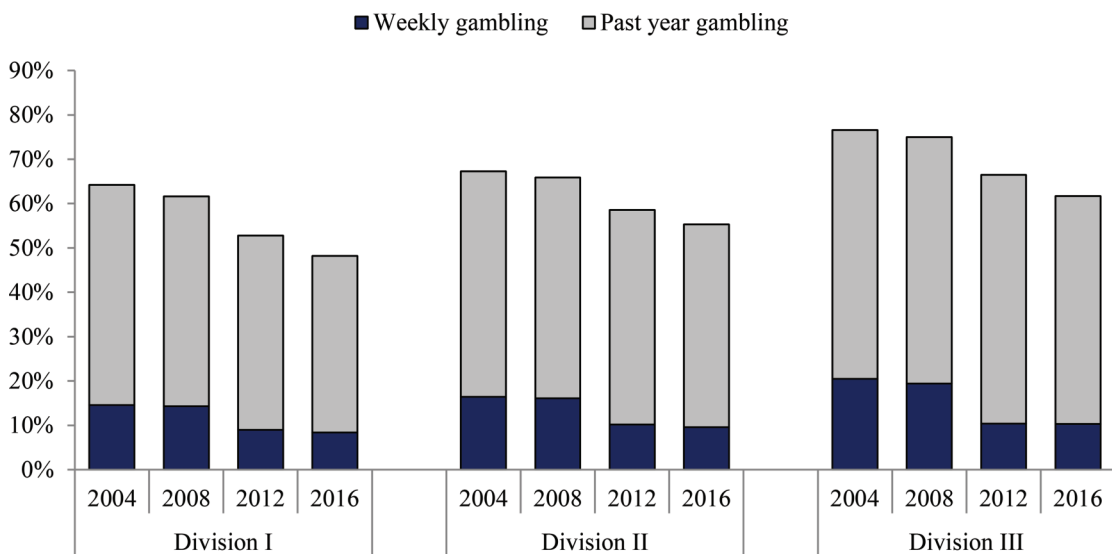


Figure 2. Past year and weekly gambling participation rates among male student-athletes across Division.

no significant changes are reported for betting on another college team comparing the reported rates from 2016 to the highest reported rates in 2008 (2.6%) ($p = .004$).

Finally, in regard to participation in fantasy leagues involving entry fees and prize money, 20% of men in the 2016 survey reported engagement, a significant increase from 17% in 2008 ($\chi^2 (1, 25667) = 37.86, p < .001, \phi = .04$), although not significantly different than 19% in 2012 ($p = .04$). Specifically, rates of participation in season long fantasy (17%) were higher than rates of daily or weekly fantasy (11%) in 2016 ($\chi^2 (1, 27314) = 204.46, p < .001, \phi = .09$). When asked about total money spent on fantasy sports within the past year, most men reported spending less than \$50 (67%) with some spending between \$50 and \$99 (18%).

Female student-athletes. Female student-athletes report participating in gambling at much lower rates than men. While overall rates of gambling participation among women decreased from 2004 (49%) to 2008 (39%) ($\chi^2 (1, 14716) = 149.25, p < .001, \phi = .10$), participation rates have remained relatively constant between 2008 and 2016 (39% in 2008; 39% in 2012; 38% in 2016). Participation rates for all gambling activities from 2004 to 2016 are reported in Table 3. Playing cards for money and betting on games of personal skill on a yearly and monthly basis showed the largest decline over this time period. A minor decrease was also observable for past year engagement in Internet casino games, yet these changes were not statistically significant ($p = .006$). Finally, rates of engagement in sports wagering have been decreasing over time, with the lowest rates of past year and monthly participation being reported in 2016.

Rates of past year and weekly gambling participation for female college-student athletes across different sports are presented in Figure 3, whereas Figure 4 represents

Table 3

Women's participation in various gambling activities in 2004, 2008, 2012 and 2016

Gambling activity	Past year gambling (%)				Monthly gambling (%)			
	2004	2008	2012	2016	2004	2008	2012	2016
Lottery tickets	29.7	24.0 _a	30.5 _b	30.9 _b	5.4	3.5 _a	5.1 _b	3.7 _{ac}
Played cards for money	19.0	10.7 _a	5.3 _{ab}	4.2 _{ab}	4.4	1.3 _a	0.6 _a	0.4 _a
Bet on games of personal skill	14.1	7.2 _a	4.0 _{ab}	2.8 _{ab}	3.2	1.2 _a	0.7 _a	0.4 _a
Bet on horse/dog races	4.8	3.2 _a	2.8 _a	2.7 _a	0.4	0.1	0.2	0.2
Commercial bingo	7.3	6.8	6.2	5.3 _{ab}	0.8	0.8	0.8	0.7
Gambled in casino	--	11.0	9.4 _b	7.7 _{bc}	--	0.6	0.6	0.4
Internet casino games	2.1	1.9	1.8	1.3	0.8	0.2	0.3	0.1
Shot dice/craps	3.5	2.2 _a	2.0 _a	1.4 _a	0.7	0.3	0.3	0.1
Slot machines	14.3	9.9 _a	8.4 _{ab}	7.2 _{ab}	1.3	0.5	0.6	0.3
Sports wagering	6.7	6.6	5.0 _{ab}	4.9 _{ab}	1.5	0.8	0.6	0.5

Note. 2x2 Pearson chi-square tests ($df = 1$) compared the 2004, 2008, 2012 and 2016 sampling distributions of respondents. a = significantly different from 2004 at $p < 0.001$; b = significantly different from 2008 at $p < 0.001$; c = significantly different from 2012 at $p < 0.001$; d = significantly different from 2016 at $p < 0.001$.

TRENDS IN GAMBLING BEHAVIOUR AMONG STUDENT ATHLETES

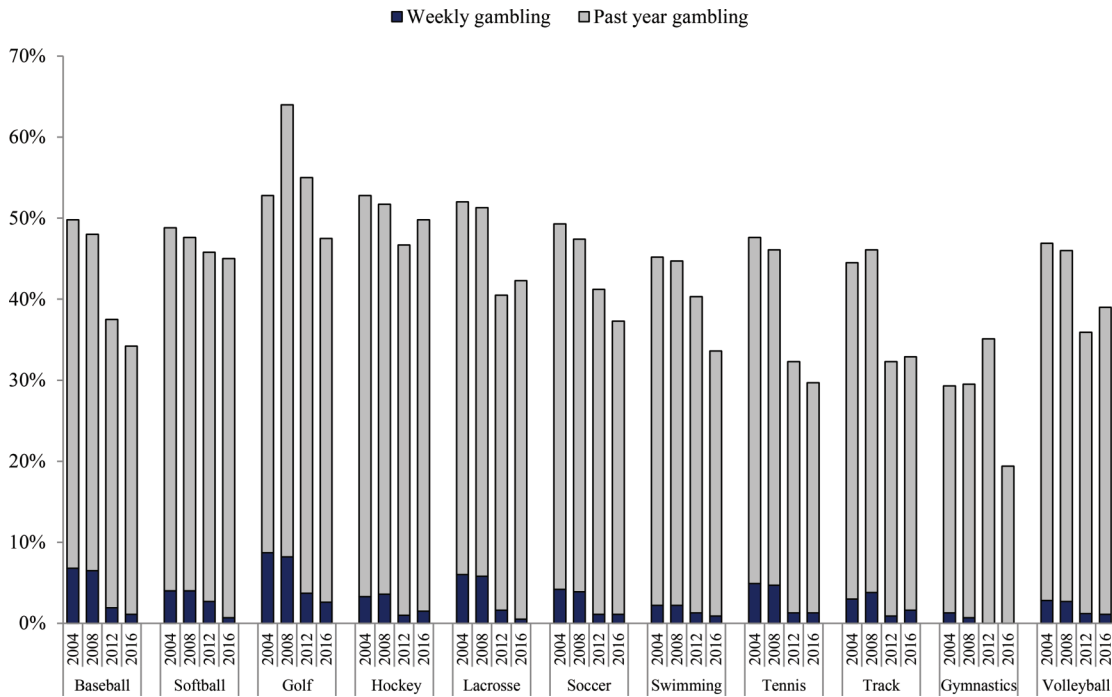


Figure 3. Past year and weekly gambling participation rates among female student-athletes across sports.

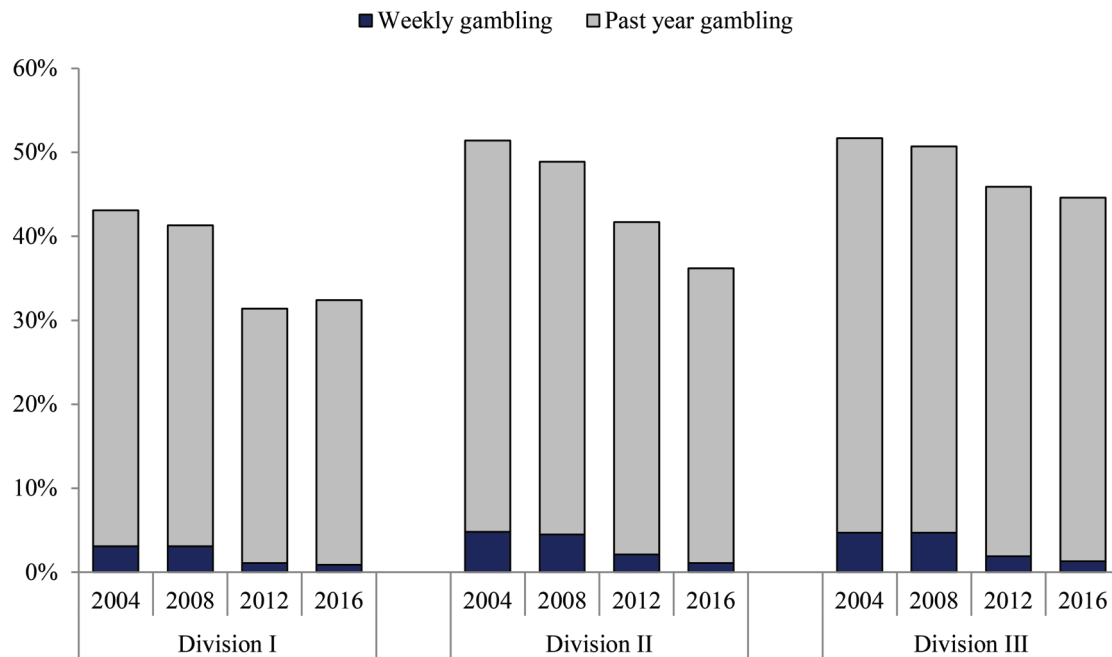


Figure 4. Past year and weekly gambling participation rates among female student-athletes across Division.

rates of past year and weekly gambling participation by Division. Generally, rates of yearly and weekly gambling have continued to decrease over time or have remained the same. However, two sports showed an increase in rates of yearly gambling including

hockey ($\chi^2 (1, 18593) = 17.77, p < .001, \phi = .03$) and volleyball ($\chi^2 (1, 18593) = 19.06, p < .001, \phi = .03$). Only track showed a significant increase in weekly participation from 2012 to 2016 ($\chi^2 (1, 18593) = 19.34, p < .001, \phi = .03$). Compared to the other sports, female golfers indicated the highest rates of weekly gambling. As for the NCAA Divisions, rates of gambling participation have continued to decrease among all Divisions over the 12-year span. Notably, there was no change in weekly gambling participation rates from 2012 to 2016 among Division I athletes ($p = .19$).

Compared to men, sports wagering appears to be a much less frequent activity among women. For the few women betting on sports, the most common target of sports betting in 2016 was wagering on NCAA basketball (44%) and on the NFL (44%). Additionally, betting on college games appears to be a relatively rare event for women, with extremely low base-rates being present in 2016. Finally, in regard to participation in fantasy leagues involving entry fees and prize money, 3.1% of women in the 2016 survey reported participation, an increase from 1.8% in 2012 ($\chi^2 (1, 18593) = 33.16, p < .001, \phi = .04$), but no different than the rates in 2008 (2.4%; $p = .007$) and 2004 (2.7%; $p = .13$). Specifically, rates of participation in season long fantasy (2.7%) were not significantly different than rates of daily or weekly fantasy (2.4%) in 2016 ($p = .21$). When asked about total money spent on fantasy sports within the past year, most women reported spending less than \$10 (57%) or between \$10 and \$49 (37%).

Problem-Gambling Behaviour

Generally, the percentage of student-athletes categorized as at-risk and PPGs decreased over the twelve-year span (Table 4). In 2016, 45.3% of men were identified as non-gamblers, compared to 42.3% in 2012, 33.7% in 2008 and 29.3% in 2004. The percentage of men categorized as social gamblers also decreased from 2004 to 2016, suggesting that a lower number of individuals are engaging in recreational gambling. As for at-risk and PPGs, rates have remained similar between 2012 and 2016 ($p = .56$). Notably, rates of at-risk/PPG in 2016 are lower than those reported in both 2004 ($\chi^2 (1, 25656) = 112.33, p < .001, \phi = .07$) and 2008 ($\chi^2 (1, 25667) = 95.66,$

Table 4

Problem gambling severity among men and women based on DSM-IV-TR classification in 2004, 2008, 2012 and 2016

DSM classification	Men (%)				Women (%)			
	2004	2008	2012	2016	2004	2008	2012	2016
Non-gambler	29.3	33.7 _a	42.3 _{ab}	45.3 _{abc}	51.1	61.4 _a	61.3 _a	62.4 _a
Social gambler	66.7	62.5 _a	55.8 _{ab}	52.8 _{abc}	48.6	38.2 _a	38.6 _a	37.5 _a
At-risk gambler	2.9	1.8	1.2 _a	1.1 _a	0.3	0.2	<0.1	<0.1
Probable pathological gambler	1.1	2.0	0.7 _b	0.7 _b	<0.1	0.2	<0.1	<0.1

Note. 2x2 Pearson chi-square tests ($df = 1$) compared the 2004, 2008, 2012 and 2016 sampling distributions of respondents. a = significantly different from 2004 at $p < 0.001$; b = significantly different from 2008 at $p < 0.001$; c = significantly different from 2012 at $p < 0.001$; d = significantly different from 2016 at $p < 0.001$

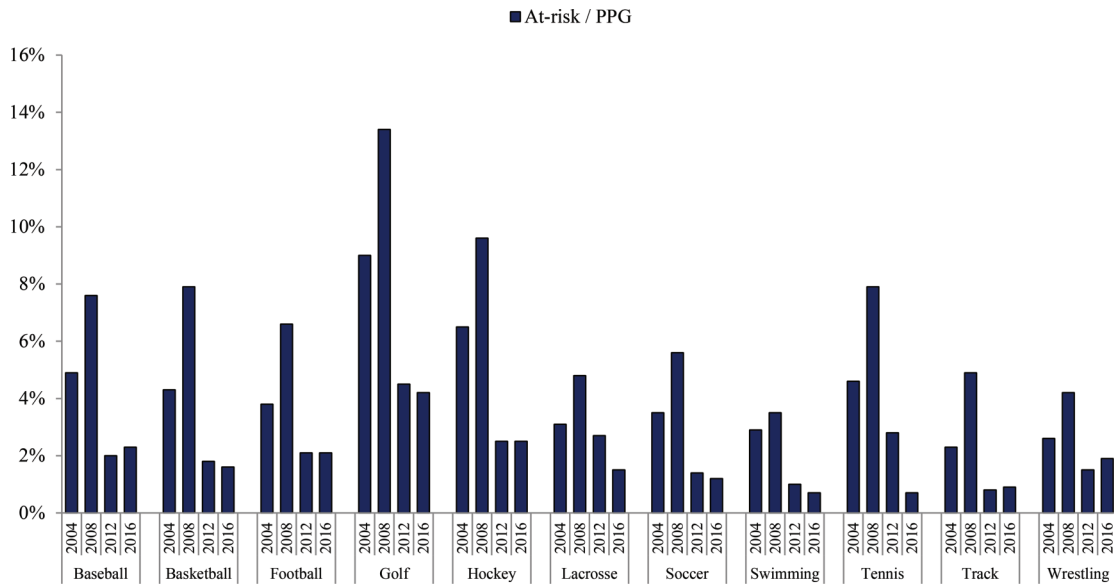


Figure 5. Proportion of at-risk and probable pathological gamblers (PPGs) among male student-athletes across sports.

$p < .001$, $\phi = .06$). Proportions of at-risk/PPGs across different sports are presented in Figure 5, whereas rates of at-risk/PPGs by Division are presented in Figure 6. Generally, we can see a decrease in the rates of at-risk/PPGs over time with certain gambling behaviours staying the same since 2012. Male golfers were the athletes with the highest rates of at-risk/PPG compared to all other NCAA sports.

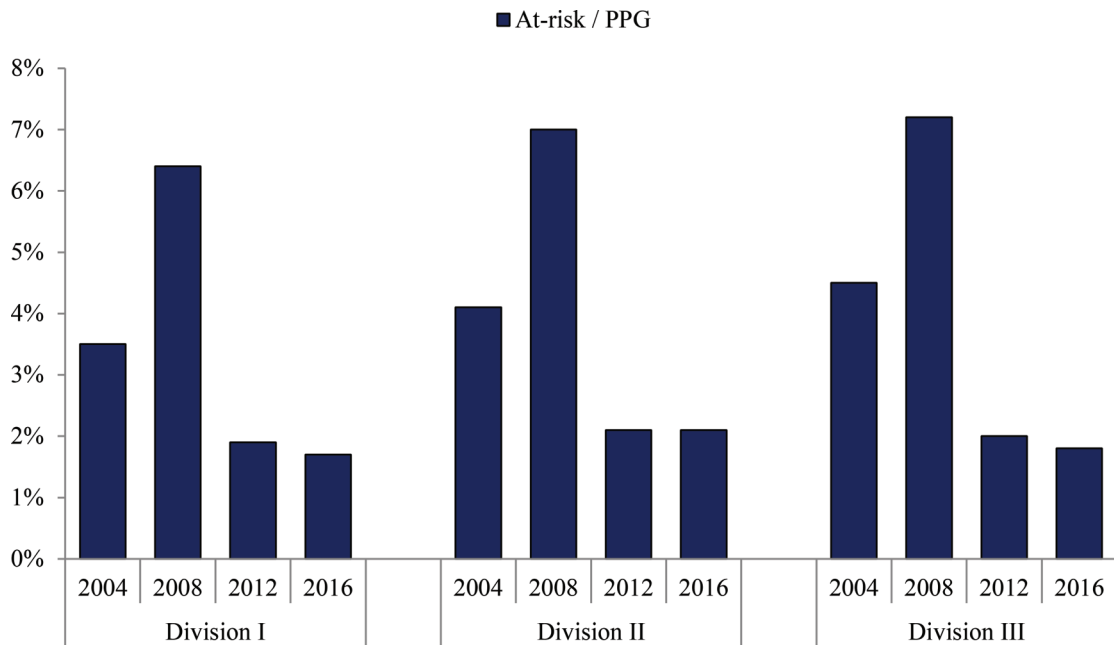


Figure 6. Proportion of at-risk and probable pathological gamblers (PPGs) among male student-athletes across Division.

As for women, the proportion of non-gamblers increased since 2004 (51.1%) yet had remained similar between 2008 (61.4%), 2012 (61.3%) and 2016 (62.4%). A similar trend was found for women identified as social gamblers. In both 2012 and 2016, less than 1% of women were at-risk or PPGs. As women engage in gambling activities at a much lower rate than men and participation rates remained generally stable, it is expected that problem gambling rates among women have also remained low and stable over the twelve-year span. The proportion of at-risk/PPGs among females was extremely low which prevented statistically reliable comparisons within sports and Divisions between 2004 and 2016.

Origin of Gambling Behaviours

Student-athletes were asked about their age when they first gambled. Descriptive data regarding the origins of gambling behaviours are depicted in Table 5. In 2016, most men who had gambled in the past year, reported first gambling in high-school or before high-school. Among women, the majority reported first gambling in high-school or in college. Generally, similar findings are reported across the years, with an increase of men and women reporting first gambling in college within the 2016 cohort compared to 2012 (men, $\chi^2(1, 26730) = 118.27, p < .001, \phi = .07$; women $\chi^2(1, 18593) = 83.00, p < .001, \phi = .07$).

In regard to the first activity student-athletes report participating in, men most frequently endorsed cards/poker (35%), sports betting (26%), and games of personal skill (14%) in 2016. These initiating activities were similar in 2012, with men most frequently endorsing cards/poker (48%), sports betting (20%) and games of personal skill (12%). Women reported a different entry point into gambling when compared to men. In 2016, women reported lottery or scratch tickets (27%), cards/poker (18%), and slots (18%) as the most popular initial gambling activities. This pattern of behaviours was similar in 2012, with lottery or scratch tickets (26%), cards/poker (24%), slots (15%), and sports wagering (13%) being the most common activities women engaged in as their first gambling experience.

Table 5

Origins of gambling behaviors among men and women in 2008, 2012 and 2016

First time gambled for money	Men (%)			Women (%)		
	2008	2012	2016	2008	2012	2016
Before high-school	26	33 _a	31 _{ab}	13	18 _a	13 _b
High-school	66	59 _a	57 _{ab}	63	57 _a	56 _a
College	8	8	12 _{ab}	24	25	31 _{ab}

Note. 2x2 Pearson chi-square tests ($df = 1$) compared the 2008, 2012 and 2016 sampling distributions of respondents.

a = significantly different from 2008 at $p < 0.001$; b = significantly different from 2012 at $p < 0.001$; c = significantly different from 2016 at $p < 0.001$

Gambling Knowledge and Attitudes

Student-athletes were asked about their awareness of NCAA rules and regulations regarding gambling and sports wagering. Since there have been reported variations in the awareness of rules based on athletic Division (Sansanwal et al., 2018), these comparisons were made across Division I, II and III athletes. Over the past twelve years, knowledge and awareness of NCAA sports wagering rules appears to have increased; highest among Division I athletes (76% men; 82% women), lowest among Division III athletes (68% men; 64% women). These rates of awareness among Division I athletes were slightly lower in 2012 (72% men ($\chi^2(1, 9417) = 19.47, p < .001, \phi = .05$); 76% women ($\chi^2(1, 6679) = 36.18, p < .001, \phi = .07$), while being quite similar to rates in 2008 (77% men ($p = .22$); 83% women ($p = .27$)). Furthermore, in 2016, 70% of student-athletes “agreed” or “strongly agreed” that the threat of NCAA penalties discourages student-athletes from wagering on sports. Although this represents a decrease from 75% in 2012 ($\chi^2(1, 45323) = 141.99, p < .001, \phi = .06$), it is still higher than the 64% agreeing or strongly agreeing with this statement in 2008 ($\chi^2(1, 41759) = 169.62, p < .001, \phi = .06$).

In the 2016 survey, 39% of men and 20% of women reported that sports wagering is acceptable so long as they are wagering on a sport in which they do not participate. These attitudes have changed significantly, as 57% of men ($\chi^2(1, 26730) = 867.76, p < .001, \phi = .18$) and 41% of women ($\chi^2(1, 18593) = 952.33, p < .001, \phi = .23$) reported this was acceptable in 2012. Similarly, in 2016, 49% of men and 31% of women perceived sports wagering is a harmless pastime, representing a significant decline compared to 2012 (68% men ($\chi^2(1, 26730) = 992.02, p < .001, \phi = .19$); 58% women ($\chi^2(1, 26730) = 1361.92, p < .001, \phi = .27$)). However, these attitudes were more like perceptions held in 2008, albeit they were still significantly lower for men in 2016 (53% men ($\chi^2(1, 25667) = 40.85, p < .001, \phi = .04$); 33% women ($p = .007$)). Finally, 31% of men and 13% of women believed they could make a lot of money wagering on sports in 2016. These rates depict a significant change over time, where 59% of men ($\chi^2(1, 26730) = 2118.03, p < .001, \phi = .28$) and 49% of women ($\chi^2(1, 18593) = 2753.45, p < .001, \phi = .38$) believed this to be the case in 2012, and 51% of men ($\chi^2(1, 25667) = 1061.59, p < .001, \phi = .2$) and 36% of women ($\chi^2(1, 16092) = 1174.58, p < .001, \phi = .27$) believed this to be the case in 2008.

Discussion

The purpose of this study was to compare the results of the 2004, 2008, 2012 and 2016 NCAA national surveys while providing further context and detail to the original NCAA report (National Collegiate Athletic Association, 2017). Despite greater availability and accessibility of gambling opportunities, including the expanding popularity of sports wagering, overall past year and past month gambling participation rates are the lowest among the 2016 cohort of student-athletes. Furthermore, results indicate an overall increase in the proportion of non-gamblers and consequently a reduction of social, at-risk and PPGs. This study also provides

novel insight regarding differences in gambling participation by NCAA division, sport, and the change in attitudes since 2012 with regards to sports wagering.

Previous research reports mixed findings regarding whether college student-athletes gamble more frequently or have more gambling-related problems than non-athletes (Stuhldreher et al., 2007; Weinstock et al., 2007), with a recent review indicating that student-athletes have higher rates of pathological gambling than non-athletes although they report similar rates of gambling engagement (Nowak, 2018). Based on previously identified rates of past year gambling among a general population of college students (Barnes et al., & Tidwell, 2010; Blinn-Pike et al., 2007; Lostutter et al., 2014), student-athletes in the present study appear to have significantly lower rates of past year gambling participation. To explain this difference, it is possible that compared to non-athletes, student-athletes have less time to participate in gambling given their additional athletic responsibilities (e.g., regular athletic training, attending practices and games, maintaining a high academic standard). Furthermore, although rates of problem and pathological gambling appear to be lower among student-athletes in the present study, direct comparisons between studies may be difficult because of the different measures utilized to assess problem gambling. Notably, whereas the NCAA studies utilize the questionnaire format from the DSM-IV-TR (American Psychiatric Association, 2000) as a measure for pathological gambling, previous studies have typically incorporated the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987), which has been reported as identifying higher rates of false positives, thus revealing much higher prevalence rates of PPGs compared to the DSM diagnostic criteria (Goodie et al., 2013).

Comparing rates of gambling among NCAA student-athletes in 2004 and 2008, Shead et al. (2014) reported that although rates of past year and past month gambling decreased over this period, rates of at-risk/PPGs remained relatively constant. Furthermore, Sansanwal, Derevensky and Paskus (2018) reported that participation rates for all gambling activities had decreased over the eight-year span while the proportion of students being at-risk/PPGs decreased among men yet remained relatively constant among women. The current study extends these findings to the 2016 NCAA data set, establishing that over the 12-year period, rates of at-risk/PPGs have marginally decreased among men. Notably, 4.0% of men were identified as being combined at-risk/PPGs in 2004 and 2008, a figure which subsequently decreased to 1.9% in 2012 and 1.8% in 2016. As for women, these rates have remained quite low over the 12-year span, with less than 0.1% of women being at-risk/PPGs in 2016.

As for the rates of gambling by sport, both male and female golfers were once again found to have the highest rates of weekly gambling, with the highest rates of at-risk/PPG being found among male golfers. Previous reports have found similar results where golfers indicated the highest rates of weekly gambling and at-risk/problem pathological gambling (Shead et al., 2014). As there is a strong connection between golf and gambling (LeCompte, 2005), it is not surprising that these findings were found consistently over time. Golf is generally characterized by long breaks between

shots during which players have the time to bet on the outcome of a single shot, a single hole, nine holes, or an entire round. Since gambling is entrenched in the culture of golf, it is possible that gambling on golf carries over into other activities outside of the sport. It is also conceivable that golfers who view gambling as a normative activity may be more likely to seek other gambling opportunities outside of the sport.

Regarding the differences between NCAA Divisions, Division III athletes were found to have higher rates of past year gambling, followed by Division II athletes and Division I athletes. Although rates of weekly gambling and at-risk/PPG decreased in all Division from 2004 to 2012, there was not a significant decrease in these rates in 2016. As Division I athletes report being more knowledgeable of NCAA rules and regulations concerning sports wagering, it is possible that knowledge of potential repercussions (e.g., losing athletic eligibility) are keeping them from engaging in gambling as frequently as other athletes. Furthermore, as Division I athletes face a high level of public scrutiny compared to Division II and II athletes, they may avoid engaging in gambling because of the heightened risks associated with such actions.

Internet gambling and sports wagering have both been identified as significant risk factors for an increased frequency of involvement in gambling among student-athletes (, Derevensky, & Paskus, 2014; Marchica & Derevensky, 2015). Although nearly a quarter of men report wagering on sports over the past year from and close to 9% participated in sports wagering over the past month, Internet gambling does not appear to be as significant a concern. To explain this disparity, it is possible that sports wagering attracts a greater number of participants when compared to other forms betting as sports is a culturally valued activity, especially among athletes. However, one of the most significant changes in beliefs across the twelve-year span has been in the increase of student-athletes perceiving sports wagering is an unacceptable and harmful pastime. Comparing results from 2012 and 2016, there was an 18% change in men and 21% change in women reporting sports betting is unacceptable even if it is on a sport they do not participate in. Furthermore, 19% more men and 27% more women see sports betting as harmful in 2016 compared to 2012. A possible factor that may account for this change in beliefs is the recent emergence of novel mediums through which individuals can now participate in sports wagering. With the recent growth of online daily and weekly fantasy sports (FSTA, 2018), it is possible that more depersonalized and solitary forms of online sports wagering are increasing perceptions of risk among student-athletes. In the earlier samples, student-athletes may have predominantly participated in sports wagering by betting on season long fantasy or on individual games with friends or teammates. This form of betting may have led student-athletes to believe that they had higher odds of winning while being less harmful. However, in 2016, with the rise of online daily fantasy sports, it is possible that students now perceive heightened risks associated with online sports wagering, both socially and financially. Alternatively, it also is conceivable that the NCAA awareness programs and enforcement groups are another factor responsible for this notable change in perceptions over time. Further research is required to differentiate between different types of sports betting and associated

perceptions of risk among student-athletes and whether educational efforts are effective in changing perceptions of harm regarding sports wagering.

Over the years, the NCAA has implemented various awareness and prevention programs, enforcement groups and a website to educate and reduce rates of gambling and sports wagering among its student population. Although the effect of these initiatives was not investigated directly in this study, comparing rates of gambling and at-risk/PPGs from 2004 to 2016, it would appear as though the NCAA's strategy may be effective in discouraging athletes to participate in gambling, especially among Division I students. However, other factors may have been responsible for the reduced rates of gambling. For example, because of awareness programs, a reduced willingness to engage in gambling may have been present for student-athletes as they may fear suspension or loss of scholarship eligibility. Furthermore, there may have been an increase in direct discouragement by teammates and coaches to engaging in gambling in the recent years.

Based on the study findings from 2004 to 2016, the adaptation hypothesis may appear to explain best gambling trends among student-athletes. The adaptation hypothesis posits that as gambling becomes more accessible, gambling will be seen as something less novel and exciting, resulting in people gambling less frequently while experiencing less gambling-related problems (Shaffer, 2005). As would be expected based on the adaptation hypothesis, engagement in gambling among student-athletes has decreased over time and so have rates of problem/pathological gambling. Comparing the availability of gambling venues from 2004 to 2016, modalities of gambling have expanded exponentially, with an increased number of casinos, Internet gambling websites and opportunities to wager on sports (American Gaming Association, 2013). However, rates of gambling participation among student-athletes have declined over time. Given these findings, it is possible that rates of gambling participation among student-athletes will continue to decrease over time as this activity becomes less novel and increasingly normalized for younger individuals.

Limitations

Although this study marks a rigorous attempt in observing changes in gambling behaviours and attitudes among NCAA college student-athletes over a twelve-year period, the study is subject to several limitations. First, the data collected from the 2004, 2008, 2012 and 2016 surveys are all self-report. Although student-athletes were informed that responses were confidential, the seriousness of certain of the questions asked (with items pertaining to violations of NCAA policies that could result in loss of eligibility), may have led participants to omit or under-report their actual gambling participation. Although data cleaning procedures were implemented to try to eliminate dubious responses, such methods may not be as effective in detecting purposefully omitted data. Second, comparability of the findings may be less accurate between the 2004 and other surveys because of the modification in the survey's general format. Third, multiple undetected cohort and environmental

factors may have been responsible for the observed decrease in gambling and problem gambling behaviour over the twelve-year period. Further longitudinal research is needed to ascertain the trajectory of student-athlete gambling and whether these behaviours are maintained over time. Despite these limitations, the results of this study with comparative data of over 84,000 college student-athletes, suggest an overall decline in gambling participation rates among student-athletes, despite the easier accessibility, broader availability, and greater societal acceptance of gambling behaviours.

Future Directions

With the recent US Supreme Court ruling permitting states to have legalized sports wagering, it will be increasingly important to carefully monitor changes in gambling behaviours among college student-athletes. As gambling becomes more normalized among American youth, student-athletes remain an at-risk population for problem gambling and sports gambling-related scandals. Although gambling behaviours have decreased in this population over the past 12 years, sports wagering remains a popular and frequent activity. Given the negative impact of problem gambling on student-athletes, the development and refinement of comprehensive sports wagering and gambling educational program within the NCAA is essential. Innovative and contemporary educational programs directed towards students, athletic staff and coaches should be developed and implemented across all Divisions to address evolving issues relevant to sports wagering and the potential to undermine the integrity of sporting contests. For instance, attention could be drawn to NCAA rules and regulations concerning sports wagering and strategies could be offered to coaches and athletic staff to address issues related to gambling. Additionally, identifying specific risk factors associated with gambling problems among student-athletes would be beneficial to target prevention and intervention efforts to those most at-risk of harm and consequences. Lastly, university policies regulating the gambling behaviours of their students on campus could potentially buffer against the negative consequences of problem gambling while influencing attitudes and perceptions towards gambling behaviours.

References

- Abbott, M. W. (2006). Do EGMs and problem gambling go together like a horse and carriage? *Gambling Research*, 18, 7–38.
- American Gaming Association. (2013). *State of states: The AGA Survey of the Casino Industry*. Np: np. Retrieved from: https://www.americangaming.org/sites/default/files/2016%20State%20of%20the%20States_FINAL.pdf
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision. ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.

Barnes, G. M., Welte, J. W., Hoffman, J. H., & Tidwell, M. C. (2010). Comparisons of gambling and alcohol use among college students and non-college students in the U.S. *Journal of American College Health*, 58, 443–452. doi:10.1080/07448480903540499

Bischof, A., Meyer, C., Bischof, G., John, U., Wurst, F. M., Thon, N., Lucht, M., Grabe, H. J., & Rumpf, H. J. (2015). Suicidal events among pathological gamblers: The role of comorbidity of axis I and axis II disorders. *Psychiatry Research*, 225, 413–419. doi:10.1016/j.psychres.2014.11.074

Black, D. W., Coryell, W., Crowe, R., McCormick, B., Shaw, M., & Allen, J. (2015). Suicide ideations, suicide attempts, and completed suicide in persons with pathological gambling and their first-degree relatives. *Suicide and Life-Threatening Behavior*, 45, 700–709. doi:10.1111/sltb.12162. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4595153>

Blinn-Pike, L., Worthy, S. L., & Jonkman, J. N. (2007). Disordered gambling among college students: A meta-analytic study. *Journal of Gambling Studies*, 23, 175–183. doi:10.1007/s10899-006-9036-2

Brezing, C., Derevensky, J. L., & Potenza, M. N. (2010). Non-substance-addictive behaviors in youth: Pathological gambling and problematic Internet use. *Child and Adolescent Psychiatric Clinics of North America*, 19, 625–641. doi:10.1016/j.chc.2010.03.012

Calkins, K. G. (2005). *Applied statistics: Lesson 13: More correlation coefficients*. Berrien Springs, MI: Author. Retrieved from: <https://www.andrews.edu/~calkins/math/edrm611/edrm13.htm>

Edwards, G., Anderson, P., Babor, T., Casswell, S., Ferrence, R., Giesbrecht, N., ... & Skog, O. J. (1995). *Alcohol Policy and the Public Good*. Oxford, United Kingdom: Oxford University Press.

Ellenbogen, S., Jacobs, D., Derevensky, J. L., Gupta, R., & Paskus, T. (2008). Gambling behavior among college student-athletes. *Journal of Applied Sport Psychology*, 20, 349–362. doi:10.1080/10413200802056685

Engwall, D., Hunter, R., & Steinberg, M. (2004). Gambling and other risk behaviors on university campuses. *Journal of American College Health*, 52, 245–256. doi:10.3200/JACH.52.6.245-256

Fantasy Sports Trade Association (2018). *Industry demographics*. Madison, WI: Author. Retrieved from: <http://fsta.org/research/industry-demographics>

Figone, A. J. (2012). *Cheating the spread: Gamblers, point shavers, and game fixers in college football and basketball*. Champaign, IL: University of Illinois Press.

Gambling Law U.S. (2017). *State gambling laws*. Retrieved from: <http://www.gambling-law-us.com/State-Laws>

Goodie, A. S., MacKillop, J., Miller, J. D., Fortune, E. E., Maples, J., Lance, C. E., & Campbell, W. K. (2013). Evaluating the South Oaks Gambling Screen with DSM-IV and DSM-5 criteria: Results from a diverse community sample of gamblers. *Assessment*, 20, 523–531. doi:10.1177/1073191113500522

Gupta, R., & Derevensky, J. L. (1996). The relationship between gambling and video game playing behavior in children and adolescents. *Journal of Gambling Studies*, 12, 375–394. doi:10.1007/BF01539183

Kerber, C. S. (2005). Problem and pathological gambling among college athletes. *Annals of Clinical Psychiatry*, 17, 243–247. doi:10.1080/10401230500295388

Lesieur, H. R., & Blume, S. B. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry*, 144, 1184–1188. doi:10.1176/ajp.144.9.1184

Lund, I. (2008). The population mean and the proportion of frequent gamblers: Is the theory of total consumption valid for gambling? *Journal of Gambling Studies*, 24, 247–256. doi:10.1007/s10899-007-9081-5

Huang, J. H., Jacobs, D. F., & Derevensky, J. L. (2010). Sexual risk-taking behaviors, gambling, and heavy drinking among U.S. College athletes. *Archives of Sexual Behavior*, 39, 706–713. doi:10.1007/s10508-009-9521-7

Huang, J. H., Jacobs, D. F., & Derevensky, J. L. (2011). DSM-based problem gambling: Increasing the odds of heavy drinking in a national sample of US college athletes? *Journal of Psychiatric Research*, 45, 302–308. doi:10.1016/j.jpsychires.2010.07.001

Huang, J. H., Jacobs, D. F., Derevensky, J. L., Gupta, R., & Paskus, T. S. (2007a). Gambling and health risk behaviors among U.S. college student-athletes: Findings from a national study. *Journal of Adolescent Health*, 40, 390–397. doi:10.1016/j.jadohealth.2006.11.146

Huang, J. H., Jacobs, D. F., Derevensky, J. L., Gupta, R., & Paskus, T. S. (2007b). A national study on gambling among US college student-athletes. *Journal of American College Health*, 56, 93–99. doi:10.3200/jach.56.2.93-100. Retrieved from: <http://youthgambling.mcgill.ca/en/PDF/Publications/2007/a%20national%20study%20on%20gambling%20among%20US%20college%20student-athletes.pdf>

LaBrie, R. A., Shaffer, H. J., LaPlante, D. A., & Wechsler, H. (2003). Correlates of college student gambling in the United States. *Journal of American College Health*, 52, 53–62. doi:10.1080/07448480309595725

LaPlante, D. A., & Shaffer, H. J. (2007). Understanding the influence of gambling opportunities: Expanding exposure models to include adaptation. *American Journal of Orthopsychiatry*, 77, 616–623. doi:10.1037/0002-9432.77.4.616

Laska, M. N., Pasch, K. E., Lust, K., Story, M., & Ehlinger, E. (2009). Latent class analysis of lifestyle characteristics and health risk behaviors among college youth. *Prevention Science*, 10, 376–386. doi:10.1007/s11121-009-0140-2

LeCompte, T. (2005). Gambling and golf: A match made in heaven. *American Heritage*, 56(4), 64.

Lostutter, T. W., Lewis, M. A., Crouce, J. M., Neighbors, C., & Larimer, M. E. (2014). The use of protective behaviors in relation to gambling among college students. *Journal of Gambling Studies*, 30, 27–46. doi:10.1007/s10899-012-9343-8. Retrieved from: https://www.researchgate.net/publication/233887303_The_Use_of_Protective_Behaviors_in_Relation_to_Gambling_Among_College_Students

Marchica, L., & Derevensky, J. L. (2015). Fantasy sports: A growing concern among college student-athletes. *International Journal of Mental Health and Addiction*, 14, 635–645. doi:10.1007/s11469-015-9610-x

Martin, R. J., Nelson, S. E., & Gallucci, A. R. (2016). Game on: Past year gambling, gambling-related problems, and fantasy sports gambling among college athletes and non-athletes. *Journal of Gambling Studies*, 32, 567–579. doi:10.1007/s10899-015-9561-y

Martin, R. J., Usdan, S., Cremeens, J., & Vail-Smith, K. (2014). Disordered gambling and co-morbidity of psychiatric disorders among college students: An examination of problem drinking, anxiety and depression. *Journal of Gambling Studies*, 30, 321–333. doi:10.1007/s10899-013-9367-8

McComb, J. L. & Hanson, W. E. (2009). Problem gambling on college campuses. *NASPA Journal*, 46, 1–29. doi:10.2202/1949-6605.5003

Mohler-Kuo, M., Lee, J. E., & Wechsler, H. (2003). Trends in marijuana and other illicit drug use among college students: Results from 4 Harvard School of Public Health College Alcohol Study surveys: 1993–2001. *Journal of American College Health*, 52, 17–24. doi:10.1080/07448480309595719

Murphy v National Collegiate Athletic Association, 16–476 U.S. 584 (2018). Retrieved from: https://www.supremecourt.gov/opinions/17pdf/16-476_dbfi.pdf

National Centre for Education Statistics. (2018). Back to school statistics. Washington, DC: Author. Retrieved from: <https://nces.ed.gov/fastfacts/display.asp?id=372>

National Collegiate Athletic Association. (2017). *Trends in NCAA student-athlete gambling behaviors and attitudes: Executive summary November 2017*. Indianapolis, IN: Author. Retrieved from: <http://www.ncaa.org/about/resources/research/trends-ncaa-student-athlete-gambling-behaviors-and-attitudes>

National Collegiate Athletic Association. (2018). *Division III 2018-19 facts and figures*. Indianapolis, IN: Author. Retrieved from: https://ncaaorg.s3.amazonaws.com/about/d3/2018-19D3_FactandFigures.pdf

Neighbors, C., Rodriguez, L. M., Rinker, D. V., Gonzales, R. G., Agana, M., Tackett, J. L., & Foster, D. W. (2015). Efficacy of personalized normative feedback as a brief intervention for college student gambling: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 83, 500–511. doi:10.1037/a0039125

Nowak, D. E. (2017a). A meta-analytical synthesis and examination of pathological and problem gambling rates and associated moderators among college students: 1987–2016. *Journal of Gambling Studies*, 34, 465–498. doi:10.1007/s10899-017-9726-y

Nowak, D. E. (2018). Gambling disorder in the college student-athlete population: An overview. *Journal of Gambling Issues*, 39, 222–234. doi:10.4309/jgi.2018.39.8

Nower, L., Caler, K. R., Pickering, D., & Blaszczynski, A. (2018). Daily fantasy sports players: Gambling, addiction, and mental health problems. *Journal of Gambling Studies*. doi:10.1007/s10899-018-9744-4

Petry, N. M., & Weinstock, J. (2007). Internet gambling is common in college students and associated with poor mental health. *The American Journal on Addictions*, 16, 325–330. doi:10.1080/10550490701525673

Public Health Agency of Sweden (2016). *Gambling and gambling problems in Sweden 2008–2010: Swedish Longitudinal Gambling Study, SWELOGS: Findings from Wave One and Wave Two*. Stockholm, Sweden: Author. Retrieved from: <https://www.folkhalsomyndigheten.se/contentassets/fe1d3ba6e62a40158a8188bb3b83b9c5/gambling-gambling-problems-sweden-2008-2010-16013.pdf>

Quigley, L., Yakovenko, I., Hodgins, D. C., Dobson, K. S., El-Guebaly, N., Casey, ... Schopflocher, D. P. (2015). Comorbid problem gambling and major depression in a community sample. *Journal of Gambling Studies*, 31, 1135–1152. doi:10.1007/s10899-014-9488-8

Sansanwal, R., Derevensky, J. L., & Paskus, T. (2018). Trends in gambling behaviour among NCAA college student-athletes: A comparison of 2004, 2008 and 2012 NCAA survey data. *International Journal of Sport & Exercise Medicine*, 4, 1–12. doi:10.23937/2469-5718/1510096

Salonen, A. H., Kontto, J., Perhoniemi, R., Alho, H., & Castrén, S. (2018). Gambling expenditure by game type among weekly gamblers in Finland. *BMC Public Health*, 18, 697. doi:10.1186/s12889-018-5613-4. Retrieved from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-5613-4>

Shaffer, H. J. (2005). From disabling to enabling the public interest: Natural transitions from gambling exposure to adaptation and self-regulation. *Addiction*, 100, 1227–1230; discussion 1235. doi:10.1111/j.1360-0443.2005.01200.x

Shaffer, H. J., LaBrie, R. A., & LaPlante, D. (2004). Laying the foundation for quantifying regional exposure to social phenomena: Considering the case of legalized gambling as a public health toxin. *Psychology of Addictive Behaviors*, 18, 40–48. doi:10.1037/0893-164X.18.1.40

Shaffer, H. J., & Martin, R. (2011). Disordered gambling: Etiology, trajectory, and clinical considerations. *Annual Review of Clinical Psychology*, 7, 483–510. doi:10.1146/annurev-clinpsy-040510-143928

Shed, N. W., Derevensky, J. L., & Paskus, T. (2014). Trends in gambling behavior among college student-athletes: A comparison of 2004 and 2008 NCAA survey data. *Journal of Gambling Issues*, 29, 1–21. Retrieved from: <http://jgi.camh.net/index.php/jgi/article/view/3908>

Stinchfield, R., Hanson, W. E., & Olson, D. H. (2006). Problem and pathological gambling among college students. *New Directions for Student Services*, 2006, 63–72. doi:10.1002/ss.196

St.-Pierre, R. A., Walker, D. M., Derevensky, J. L., & Gupta, R. (2014). How availability and accessibility of gambling venues influence problem gambling: A review of the literature. *Gaming Law Review and Economics*, 18, 150–172. doi:10.1089/glre.2014.1824

Stuhldreher, W. L., Stuhldreher, T. J., & Forrest, K. Y. (2007). Gambling as an emerging health problem on campus. *Journal of American College Health*, 56, 75–83. doi:10.3200/jach.56.1.75-88

Temcheff, C. E., Derevensky, J. L., & Paskus, T. S. (2011). Pathological and disordered gambling: A comparison of DSM-IV and DSM-V criteria. *International Gambling Studies*, 11, 213–220. doi:10.1080/14459795.2011.581677

Vespa, J. (2017). *The changing economics and demographics of young adulthood: 1975-2016. Current Population Reports*. Washington, DC: US Census Bureau. <https://www.census.gov/content/dam/Census/library/publications/2017/demo/p20-579.pdf>

Wechsler, H., Lee, J. E., Kuo, M., Seibring, M., Nelson, T. F., & Lee, H. (2002). Trends in college binge drinking during a period of increased prevention efforts: Findings from 4 Harvard School of Public Health College alcohol study surveys: 1993–2001. *Journal of American College Health*, 50, 203–217. doi:10.1080/07448480209595713

Weinstock, J., Whelan, J. P., Meyers, A. W., & McCausland, C. (2007). The performance of two pathological gambling screens in college students. *Assessment*, 14, 399–407. doi:10.1177/1073191107305273

Weiss, S. (2010). Cross-addiction on campus: More problems for student-athletes. *Substance Use and Misuse*, 45, 1525–1541. doi:10.3109/10826081003682297

Williams, R. J., Volberg, R. A., & Stevens, R. M. G. (2012). The population prevalence of problem gambling: Methodological influences, standardized rates, jurisdictional differences, and worldwide trends. Report prepared for the Ontario Problem Gambling Research Centre and Ontario Ministry of Health and Long-Term Care. <http://opus.uleth.ca/bitstream/handle/10133/3068/2012-PREVALENCE-OPGRC%20%282%29.pdf?sequence=3&isAllowed=y>

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Gambling Among Emerging Adults: How Gender and Risk Level Influence Associated Problem Behaviours

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Abstract

This study investigates mental health and substance use problems associated with gambling among Canadian emerging adults (ages 18–20 years). Drawing on a cross-sectional wave of 624 (47.8% male) participants from the Manitoba Longitudinal Study of Young Adults, our findings suggest that among emerging adults, problem gambling should be understood as part of a wider syndrome. The profile of syndromic associations varies with both problem gambling risk level and gender. With respect to risk level, regression models indicate that, relative to no-risk gamblers, lower risk gamblers are more likely to use drugs and alcohol, whereas higher risk gamblers report greater symptoms of depression and anxiety. Males and females present different barriers to recovery: High-risk female gamblers are more likely to rely on escape-avoidance coping mechanisms, whereas their male counterparts tend to lack perceived social support. Given the centrality of these two variables and the lack of literature addressing how they interact, we conclude that further research is needed to understand how gender and gambling severity interact to simultaneously influence gambling-related behaviours among emerging adults.

Keywords: gender, problem gambling, emerging adults, substance abuse, symptomology

Résumé

Cette étude porte sur les problèmes de santé mentale et de toxicomanie associés au jeu chez les jeunes adultes canadiens (âgés de 18 à 20 ans). Fondés sur une vague transversale de 624 participants (47,8% d'hommes) de l'étude longitudinale des jeunes adultes du Manitoba (MLSYA), nos résultats laissent entendre que, parmi les jeunes adultes, le jeu problématique devrait être abordé comme faisant partie d'un syndrome plus vaste. Le profil des associations syndromiques varie selon le niveau de risque de jeu problématique et le genre. En ce qui concerne le niveau de risque, les modèles de régression indiquent que, par rapport aux joueurs sans risque, les joueurs à faible risque sont plus susceptibles de consommer de la drogue et de l'alcool, tandis

que les joueurs à risque plus élevé montrent des symptômes plus importants de dépression et d'anxiété. En parallèle, les hommes et les femmes rencontrent différents obstacles au rétablissement : les joueuses à haut risque sont plus susceptibles de compter sur des mécanismes d'adaptation comme l'échappement ou l'évitement, tandis que leurs homologues masculins ont tendance à manquer de soutien social perçu. Compte tenu de la centralité de ces deux variables et du manque de littérature traitant de leurs interactions, nous concluons qu'il est nécessaire de poursuivre les recherches pour comprendre les interactions entre le genre et la gravité du jeu pathologique afin d'influencer simultanément les comportements liés au jeu chez les jeunes adultes.

Introduction

Problem gambling (PG) among adolescents and emerging adults has become a central concern for gambling researchers and policy makers over the last two decades. This is for good reason. The social and emotional consequences of PG affect emerging adults as much as older adults (Chambers & Potenza, 2003). Further, emerging adults are especially susceptible to developing gambling habits that are manifestations or co-morbidities of other “problem behaviours” (Jessor & Jessor, 1977), including sensation seeking, depression and anxiety, substance abuse, delinquency, impulsivity, and lack of effective coping strategies (Carbonneau, Vitaro, Brendgen, & Tremblay, 2015; Edgerton, Melnyk, & Roberts, 2015; Sanscartier, Edgerton, & Roberts, 2018). More recently, researchers have started to explore the ways in which these related problem behaviours are not simply the consequences of PG, but are indirectly related through antecedent biological, psychosocial, and demographic factors (Chinneck, Mackinnon, & Stewart, 2016; Mutti-Packer et al., 2017; Scholes-Balog, Hemphil, Toumbourou, & Dowling, 2015).

Broadly, two kinds of studies map the symptomology of PG among emerging adults. One branch of research relies on typologies developed primarily in reference to older adults, modifying them to deductively classify emerging adult problem gamblers into families of problem behaviours. Three syndromic clusters of problem gamblers typically include those who (a) abuse alcohol and other drugs, (b) exhibit symptoms of depression and anxiety, and (c) engage in impulsive, violent, or delinquent tendencies (Allami et al., 2017; Barnes, Welte, Hoffman, & Tidwell, 2011; Gupta et al., 2013; Lorains, Cowlishaw, & Thomas, 2011; also see Blaszczynski & Nower, 2002). These *deductive* studies tend to have etiological goals, testing already well-theorized typological structures in different samples of emerging adults.

A related but contrasting branch of literature is more *inductive*, linking behaviours related to PG in more particular and exploratory ways than deductive typological studies do. These behaviours include substance abuse (Cheung, 2014; Petry & Champine, 2012; Welte, Barnes, & Hoffman, 2004), depression and anxiety (Chinneck et al., 2016; Martin, Usdan, Cremeens, & Vail-Smith, 2014), maladaptive

coping behaviours (e.g., distancing and avoidance strategies; Edgerton et al., 2015; Getty, Watson, & Frisch, 2000; Gupta, Derevensky, & Margret, 2004; Slecicka, Braun, Grüne, Bühringer, & Kraus, 2016), and impulsivity and delinquency (Chamberlain, Stochl, Redden, Odlag, & Grant, 2017; Mishra, Lalumiere, & Williams, 2017). Although these studies are less concerned with etiological links between these behaviours and PG, they identify novel and nuanced relationships of problem behaviours, especially with respect to how they are moderated via demographic (e.g., gender, ethnicity, socio-economic status) and gambling level risk factors (typically measured by using the Problem Gambling Severity Index [PGSI]/South Oaks Gambling Screen; see e.g., Matheson, Wohl, & Anisman, 2009; Sanscartier et al., 2018; Wong, Zane, Saw, & Chan, 2013). This study, in line with this more inductive kind of research, examines the simultaneous effects of two key variables in the literature: gender and gambling severity. Although the effects of each have been independently documented in the literature, no study has adequately examined how they work in tandem to structure behaviours related to PG in emerging adults.

The separate relationships of gender and severity of PG risk (i.e., low, moderate, or high) to syndromic problem behaviours are well-known to researchers. Studies focused on gender have found that young men who gamble heavily are more likely than young women to engage in alcohol use and impulsive behaviours. Conversely, young female gamblers who gamble heavily tend to more often report depression and anxiety as both motivators and consequences of problematic gambling (Barnes et al., 2011; Blanco, Hasin, Petry, Stinson, & Grant, 2006; Gupta et al., 2013). With respect to severity of PG risk, studies with older adults have found that gamblers at higher risk levels for PG tend to more frequently report the presence of mental disorders; those at lower risk levels are more likely to report (ab)use of alcohol and other drugs (e.g., Canale et al. 2017; Hodgins et al., 2012; Hounslow, Smith, Battersby, & Morefield, 2011; Winters, Stinchfield, Botzet, & Slutske, 2005). Researchers have also found that perceived social support tends to be lower among those with higher PG risk (Moghaddam, Yoon, Campos, & Fong, 2015; Weinstock & Petry, 2008). Notably, the differences in behaviours of men and women who gamble, or of those who are at lower or higher risk for PG, need to inform interventions targeted towards various populations; for example, researchers have recommended targeting sensation-seeking tendencies when tailoring PG interventions for men and addressing underlying depression when tailoring interventions for women (Khanbhai, Smith, & Battersby, 2017; Toneatto & Wang, 2009).

To our knowledge, no study has yet adequately assessed the simultaneous effects of gender and severity of PG risk. This is a serious gap in the literature, given that scholars have called for interventions that are tailored to both gender and PG risk. So far, however, these calls have been made independently of each other. Although men and women display different clusters of problem behaviours, and the same is true of those at low and high PG risk, little commentary exists on whether distinct differences exist in syndromic problem behaviours between men and women as they respectively climb the PG risk scale. A common finding is that gender affects syndromic behaviours when PG risk is included as a control variable. In contrast,

our key research question is, does this well-researched impact of gender vary across the risk spectrum? For example, although social support has been found to be lower among those at high risk for PG, does this affect men and women equally? Additionally, are men and women at lower risk for PG equally likely to (ab)use alcohol or other drugs? Aside from such unanswered questions, in addition, few studies map syndromic behaviours of PG risk specifically among emerging adults. Given that they are at especially high risk for developing problem behaviours related to PG, this kind of research is important for tailoring interventions to different demographic groups within the emerging adult population.

This study therefore sought to accomplish two tasks to advance the literature on syndromic behaviours related to PG. The first was an understanding of how gender and level of PG risk simultaneously structure co-occurring problem behaviours. The second was to grow the nascent literature whose explicit goal is to map differences in syndromic behaviours of emerging adults across levels of PG risk.

Method

Data Set

Data for this study came from the Manitoba Longitudinal Study of Young Adults (MLSYA). The MLSYA was commissioned jointly by three regulatory bodies in the Canadian province of Manitoba: the Manitoba Gaming Control Commission, the Manitoba Lotteries Corporation, and the Addictions Foundation of Manitoba. Data from young adults aged 18–20 years were collected in four waves from December 2007 to December 2011; in each wave, respondents filled out their choice of an online or mail-out paper survey. The first wave of respondents was a mix of a convenience sample of youth who were gambling in casinos, and other youth who were contacted by random digit dialling (Edgerton et al., 2015, p. 6). Respondents in subsequent waves were added by snowball sampling, wherein each participant was given a \$5 gift card for recruiting new respondents, with a maximum of one referral per participant. Descriptive statistics for the sample are found in Table 1.

Although the survey itself was longitudinal, the present analysis focused on a cross-section of data from the second wave of participants ($n = 624$, 47.8% male), collected from December 2008 to January 2009. The MLSYA sample was mostly Caucasian (80%) and from the Winnipeg region (79%). On the basis of revised PGSI cut-offs, 10.1% of the sample were non-gamblers, 69.6% were non-problem gamblers, 17.2% were low risk, 2.1% were moderate risk, and 1% were problem gamblers (Liquor and Gaming Authority of Manitoba, 2016). In addition, 32.8% of the sample were employed and 64.1% were students (the rest identified as looking for work, caring for children, or doing household work). We use Wave 2 herein because it contains key variables not found in Wave 1: impulsivity and ways of coping. We assessed the available variables in the MLSYA data set for relevance to both gender and gambling severity in the PG literature. Selected variables are listed in more detail below.

Table 1
Univariate Descriptive Statistics

Predictors	<i>N</i>	<i>M</i>	<i>SD</i>
Impulsivity	604	33.6	10.35
Social support	605	5.47	1.16
Planful problem solving	599	6.95	3.8
Distancing	599	5.61	3.47
Escape-avoidance	599	6.13	4.85
Alcohol use	624	0.97	1.64
PGSI (Wave 2)			
No risk/non-gamble	489	78.40%	
Low risk	86	13.80%	
Moderate/high risk	49	7.80%	
Depression and/or anxiety			
Present	164	26.30%	
Absent	460	73.70%	
Drug use			
Yes	257	41.90%	
No	357	58.10%	
Gender			
Men	298	47.80%	
Women	326	52.2%	

Note. PGSI = Problem Gambling Severity Index.

Finally, although we did not require ethics approval to use the MLSYA because it is a secondary data set, all interviews were conducted in accordance with the ethical standards of the relevant government bodies and in consultation with academics at Manitoba post-secondary institutions.

Dependent variable. The MLSYA used the PGSI for measuring gambling severity. The PGSI is a valid and reliable tool for measuring both current gambling problems and propensity to problematic gambling tendencies in the future (Currie, Hodgins, & Casey, 2013; Edgerton et al., 2015).

Two important caveats concern the use of the PGSI in our analysis, both related to preserving statistical power in a relatively small sample size. The first is that we used original cut-off scores of the PGSI, where scoring 0 means no risk, 1–2 low risk, 3–7 moderate risk, and 8+ a problem gambler (Wynne, 2003). Use of the revised cut-offs advised by Williams and Volberg (2013) would have meant that only 21 respondents in our sample would be considered moderate risk or higher. Although this is consistent with PG rates in the literature, using these cut-offs would introduce unacceptably low variability across categories in our dependent variable. Second, we combined the categories moderate risk and problem gamblers into a moderate/high-risk category (7.8% of sample). This strategy has been used by other authors for the PGSI as a measurement of PG in order to preserve statistical power because a score

of 8+ typically constitutes only about 2% of samples (cf. Afifi, Cox, Martens, Sareen, & Enns, 2010; Crockford et al., 2008; Currie et al., 2013). Most important, neither caveat impeded our goal of providing a more detailed look at syndromic associations between PG risk level and associated problem behaviours.

Using original PGSI cut-offs, we found that only 43.4% of the no-risk group were male ($n = 212$) but that males comprised 60.5% ($n = 52$) of the low-risk group and 69.4% ($n = 34$) of the moderate/high-risk group. This aligns with patterns in the literature showing that men gamble more often than women and tend to take bigger financial risks when doing so (Delfabbro, 2011).

Gender. As gender is the other key variable in the literature linked to syndromic behaviours related to PG, it was included in the study. Male was coded in the analysis as “1” and female was coded as “0.”

Substance use. Scales for both drug and alcohol use were developed by Statistics Canada (2003) and adapted from the Canadian Community Health Survey (Liquor and Gaming Authority of Manitoba, 2016). Alcohol use and dependency were measured with a modified (short) form of the Composite International Diagnostic Interview (CIDI-SF). Those who responded to having a drink at least “once a month” over the past 12 months were asked a series of nine questions, each question ranked ordinally from 0 to 9, creating a summative index of alcohol dependency ($\alpha = .72$). Questions asked respondents about the frequency and intensity of their drinking habits, as well as about their reliance on alcohol to mitigate psychological distress. For example, respondents were asked whether, over the past 12 months, they had to drink more alcohol to reach the same effect as before and whether they drank for longer than they intended.

For drug use, a dichotomous measure developed by Statistics Canada (2003) was used in the MLSYA. The measure is coded 1 for regular drug use (considered one to three times per month or more) over the past 12 months. 0 is coded to indicate infrequent or non-use.

Depression and anxiety. Depression and anxiety were measured with the CIDI-SF. Introduced by the World Health Organization, the CIDI-SF is a commonly used and psychometrically sound measurement of major depressive and anxiety disorders and is appropriate for use among emerging adults (Aalto-Setälä et al., 2002; Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Because of the low number of respondents with either depression or anxiety, we relied on the stem questions for both conditions. Respondents are considered as having depression if they reply “yes” to feeling sad, blue, or depressed for two or more consecutive weeks. Likewise, anxiety is considered present if the respondent answers “yes” to having felt worried, tense, or anxious for one or more consecutive months. Both categories were combined into a “depression/anxiety” category to warrant enough variability for analysis.

Social support. This study relied on the Multidimensional Scale of Perceived Social Support ($\alpha = .90$). The scale consists of 12 items, each item ranked from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Higher scores indicate greater

social support. The scale has demonstrated strong internal reliability among samples of adolescents, as well as among young and older adults (Weinstock & Petry, 2008; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). It asks respondents the extent to which they can rely on family, friends, and a significant other as sources of comfort, and with whom they can share problems and celebrations. Taken together, the survey assesses the extent to which individuals can rely on primary social networks (family, close friends, life partner) for affective support.

Coping styles. Respondents' strategies for coping with stressful situations were measured by using the Ways of Coping Questionnaire. This is a 66-item scale that measures various strategies for coping (Lazarus & Folkman, 1984). As three coping styles are most relevant to PG, for the sake of parsimony, they were the only coping measures included in our model: distancing ($\alpha = .95$), escape-avoidance ($\alpha = .80$), and planful problem solving ($\alpha = .75$).

Impulsivity. Impulsivity ($\alpha = .84$) was measured with the Barratt Impulsiveness Scale, a commonly used measure of impulsivity.

Data Analysis

To analyse characteristics and behaviours associated with different levels of PG, we ran multinomial logistic regressions in Mplus 8. Prior to analysis, a series of interaction terms were created in SPSS 20, primarily to identify the moderating effects of gender on other predictors such as social support and alcohol dependency. Last, as there was less than 5% missing data in the sample, we analysed data by using full information maximum likelihood estimation with Monte Carlo integration in order to maximize statistical power.

To examine gender moderation, we created a series of interaction terms for inclusion in the final model. Because we were interested primarily in gendered effects, we first crossed gender with all other variables listed above. We also created a Drug $\times$ Alcohol interaction term to test whether the use of drugs acts as a moderator with respect to the association between alcohol use and PG. Although this interaction is not directly relevant to gender, we understand the relationship between drug use and alcohol as being relevant to the wider question of what syndromic behaviour looks like across the risk spectrum. Where drug use positively moderates the association of alcohol with gambling severity, all three are likely being used to cope with wider psychological issues (Blazczynski & Nower, 2002).

We then dropped two interaction terms with the lowest significance and impact (Gender $\times$ Drugs and Gender $\times$ Mental health), comparing this more compact model with the first on the basis of the Bayesian information criterion (BIC). As the study is exploratory, we opted to explore all significant interaction terms post hoc to examine moderating effects on gambling severity (see Holmbeck, 2002). Given that the more parsimonious model had a smaller BIC by a difference of over

10 ($34420 < 34506$; see Raftery, 1995) we chose the second, more parsimonious model. Shrinking the model further resulted in higher BIC values. Three models were run in total (our initial model, one interaction model with all possible terms, and a last model with non-significant variables removed). Reported values in Tables 3 and 4 are from the first and third models, as the second was discarded in favour of the more concise third model.

Results

Correlation Matrix

Table 2 shows the correlation matrix for all variables. Bivariate correlations indicate that all of the predictors in the model, except planful problem solving, are related to gambling severity, as expected. Correlations with the PGSI range from very weak (depression/anxiety; $r = .088$, $p < .05$) to moderate (escape-avoidance coping, $r = .256$, $p < .01$). Correlations, as well as variability inflation factors (VIFs), indicated no collinearity among predictors ($r < .80$; Berry & Feldman, 1985; all VIFs < 2).

Initial Model

Table 2 summarizes results from the initial model. Males were over twice as likely to be in the low-risk gambler category than in the no-risk category (odds ratio [OR] = 2.109). Escape-avoidance coping scores were associated with an increased likelihood of being low risk (OR = 1.099). Similarly, higher alcohol dependence scores were associated with an increased likelihood of belonging to the low-risk group (OR = 1.170). Males were more than three times as likely to belong in the moderate/high-risk risk category as in the no-risk category (OR = 3.211). Reporting symptoms of depression/anxiety was associated with increased odds of higher risk gambling (OR = 1.767), and increased escape-avoidance scores were associated with greater odds of being in the moderate/high-risk category than in the no-risk category (OR = 1.132). Reporting symptoms of depression/anxiety increased the odds of being in the moderate/high-risk category than in the low-risk category by over two and a half times (OR = 2.586).

Interaction Model

Results for the full model, with interaction terms, are found in Table 3. When interaction terms were introduced to the first-order model, there were a few changes in significance among the original variables. First, the association between alcohol dependence and membership in the low-risk group (compared with the no-risk group) was even stronger (OR = 1.379). The use of drugs was now associated with more than double the odds of belonging to the low-risk group than to the no-risk group (OR = 2.165). Although being male was associated with more than triple the odds of belonging to the low-risk group (OR = 3.405), this was no longer statistically significant. Likewise, escape-avoidance was no longer significant in this model.

Table 2
Bivariate Correlations

Study variables	1	2	3	4	5	6	7	8	9	10
1. PGSI	-									
2. Gender (male)	0.171**	-								
3. Drug use	0.174**	0.070	-							
4. Alcohol use	0.191**	0.660	.365**	-						
5. Depression/anxiety	0.088*	-.083*	.109**	0.054	-					
6. Social support	-0.171**	-.225**	-0.042	0.006	-.131**	-				
7. WOC - distancing	0.147**	-0.140	0.041	0.138**	0.070	0.009	-			
8. WOC - escape-avoidance	0.256**	-.106**	0.125**	0.190**	0.231**	-0.094*	0.540**	-		
9. WOC - problem solving	0.040	-0.038	0.018	0.126**	.108**	0.185**	0.448**	0.407**	-	
10. Impulsivity	0.226**	0.065	0.241**	0.254**	0.044	-0.18**	0.135**	0.272**	-0.062	-

Note. PGSI = Problem Gambling Severity Index; WOC = Ways of Coping Questionnaire.

* $p < .05$. ** $p < .01$.

Table 3
Initial Multivariate Logistic Regression Model

Predictors	Low vs. No Risk			Moderate/High vs. No Risk			Moderate/High vs. Low Risk		
	B	SE	OR	b	SE	OR	b	SE	OR
Gender (male)	0.746**	0.261	2.109	1.166***	0.362	3.211	0.420	0.411	1.523
Drug use	0.481	0.267	1.618	0.322	0.369	1.379	-0.160	0.421	0.852
Alcohol use	0.157*	0.072	1.170	0.117	0.089	1.124	-0.041	0.097	0.960
Depression/anxiety	-0.381	0.304	0.683	0.569*	0.344	1.767	0.950*	0.408	2.586
Social support	-0.031	0.117	0.969	-0.251	0.139	0.778	-0.220	0.162	0.803
WOC - distancing	0.040	0.044	1.041	0.028	0.057	1.029	-0.012	0.065	0.988
WOC - escape/avoidance	0.095*	0.032	1.099	0.124**	0.041	1.132	0.029	0.048	1.030
WOC - problem solving	-0.072	0.040	0.931	-0.020	0.053	0.980	0.052	0.061	1.053
Impulsivity	0.011	0.013	1.011	0.041*	0.018	1.042	0.030	0.021	1.030

Note. Bayesian information criterion = 17844.158; pseudo-loglikelihood = -8771.16; OR = odds ratio; WOC = Ways of Coping Questionnaire.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4
Multivariate Logistic Regression Model With Interaction Terms

Predictors	Low vs. No Risk			Moderate/High vs. No Risk			Moderate/High vs. Low Risk		
	b	SE	OR	b	SE	OR	b	SE	OR
Gender (male)	1.225	1.183	3.405	3.280*	1.143	26.583	2.055	1.437	7.807
Drug use	0.772*	0.313	2.165	0.926*	0.447	2.524	0.153	0.508	1.166
Alcohol use	0.321*	0.144	1.379	0.100	0.236	1.105	-0.221	0.251	0.801
Depression/anxiety	-0.386	0.308	0.679	0.718*	0.356	2.051	1.105**	0.421	3.019
Social support	-0.108	0.171	0.897	0.080	0.217	1.083	0.188	0.251	1.207
WOC – distancing	0.104	0.063	1.109	0.041	0.090	1.042	-0.063	0.102	0.939
WOC - escape/avoidance	0.067	0.046	1.07	0.225***	0.070	1.252	0.157*	0.079	1.170
WOC - problem solving	-0.054	0.083	0.947	0.056	0.089	0.933	-0.015	0.102	0.985
Impulsivity	0.022	0.025	1.022	0.028	0.027	1.029	0.007	0.031	1.007
Interactions									
Drugs × Alcohol	0.282	0.150	1.326	0.424*	0.202	1.529	0.142	0.213	1.152
Gender × Alcohol	0.052	0.141	1.054	0.442*	0.222	1.555	0.389	0.24	1.476
Gender × Support	0.141	0.207	1.151	-0.431	0.245	0.65	-0.572*	0.288	0.564
Gender × Distancing	-0.125	0.088	0.882	-0.004	0.119	0.996	0.121	0.121	1.129
Gender × Escape/Avoidance	0.064	0.065	1.066	-0.147	0.092	0.864	-0.211*	0.102	0.810
Gender × Problem Solving	-0.036	0.083	0.964	0.056	0.110	1.057	0.092	0.127	1.096
Gender × Impulsivity	-0.019	0.025	0.981	0.028	0.032	1.009	0.028	0.037	1.028

Note. Bayesian information criterion = 34420.653; pseudo-loglikelihood = -16811.16; OR = odds ratio; WOC = Ways of Coping Questionnaire.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Being male increased the odds of belonging to the moderate/high-risk group than to the no-risk group by over 25 times ($OR = 25.583$). Reporting drug use ($OR = 2.524$) or symptoms of depression/anxiety ($OR = 2.051$) more than doubled the odds of being higher risk, and reporting higher use of escape-avoidance strategies increased the odds of being higher risk by 25% ($OR = 1.252$). Finally, when we compared moderate/high-risk gamblers to low-risk gamblers, symptoms of depression/anxiety were associated with triple the odds of belonging to the former group ($OR = 3.019$). Higher escape-avoidance strategies also increased the odds of belonging to the moderate/high-risk group ($OR = 1.170$).

Moving on to the interaction terms, there were no significant interactions in the low-risk versus no-risk comparisons. When we compared moderate/high-risk gamblers to no-risk gamblers, each unit increase in alcohol dependency increased the odds of being no risk by 53%, but only for drug users. This specification became non-significant when higher risk groups were compared with lower risk groups. In addition, the interaction between gender and alcohol was significant; although alcohol dependence did increase the risk of belonging to the higher risk group ($OR = 1.555$, or 55% more likely per unit score increase), this held only for males. When we compared moderate/high-risk to low-risk gamblers, we found that higher levels of social support were related to a decreased risk of belonging to the higher risk group, roughly a 46% decrease in odds per unit higher ($OR = 0.564$). Put another way, a 1-point decrease in perceived social support corresponded to a 77% increase in the odds of belonging to the moderate/high-risk group, but only for males (see Figure 1). A final and interesting distinction between these groups was that the first-order relationship between escape-avoidance coping and level of gambling risk was flipped. As male is coded “1” in the model, the direction of the interaction suggested that the association between gambling severity and escape-avoidance is true only for females ($OR = 0.810$). Figure 2 visually maps this interaction.

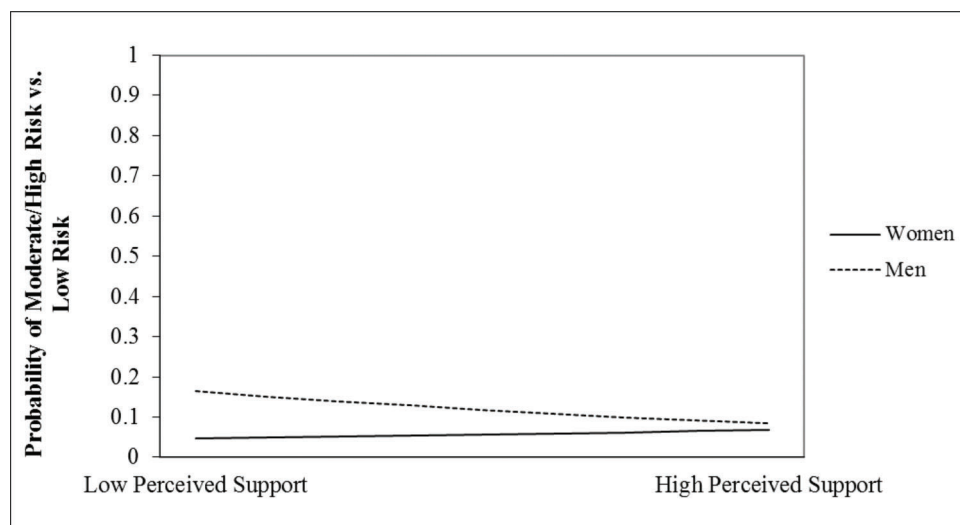


Figure 1. Moderating effects of gender between gambling severity and perceived social support.

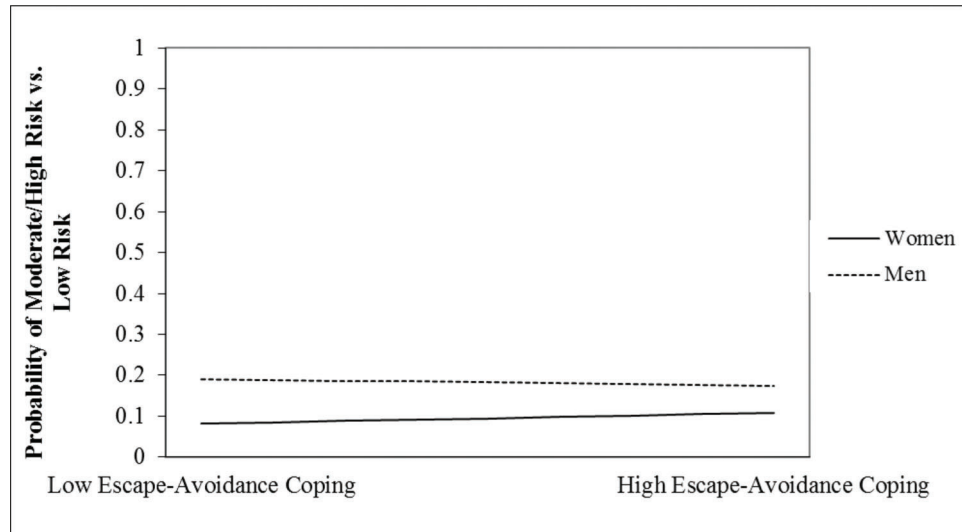


Figure 2. Moderating effects of gender between gambling severity and escape-avoidance coping styles.

Discussion

Findings from the initial models (i.e., no interaction terms) are consistent with the wider literature. First and foremost, our model finds that young men are at higher risk for developing gambling problems than are their female counterparts—a well-documented gender effect among emerging adults (Blanco et al., 2006; Edgerton et al., 2015; LaBrie, Shaffer, LaPlante, & Wechsler, 2003). Other significant correlates, including drug and alcohol use, depression/anxiety, and maladaptive coping, are also consistent with the wider literature on gambling-related problem behaviours. The model has four important findings, each relevant to the intervention of PG among emergent adults.

First, among both first-order and interaction models, there are behavioural shifts as the model moves from no-risk to high-risk gamblers. Alcohol dependence, in general, is useful for identifying low-risk gamblers and high-risk male gamblers. The relationship between higher risk gambling and alcohol use among males has been well-documented in the literature (Barnes et al., 1999; Mutti-Packer et al., 2017). More broadly, as risk increases, the effects of substance abuse are partially displaced by psychological variables, including depression/anxiety, maladaptive coping strategies, and impulsivity (in the initial model). This finding is consistent with that of Hodgins et al. (2012), who reported that it is primarily psychological factors, rather than substance use, that differentiates no-risk and low-risk gamblers from pathological gamblers.

Our model hence supports a wider picture of a syndromic gradient. Alcohol and drug use are associated with gambling at the lower end of the of gambling severity spectrum and are especially useful for distinguishing low-risk from no-risk gamblers in the sample. For moderate- and high-risk gamblers, psychological distress takes on a more salient (but not exclusive) role compared with that in their low- and no-risk counterparts. The significant Drug $\times$ Alcohol interaction term further indicates that

drug use in combination with alcohol is more relevant to moderate- and high-risk gamblers than is alcohol use alone. Hence, the model suggests a set of moderate- to high-risk gamblers who show stronger associations with depression and/or anxiety, as well as drug use (and potential further alcohol use).

This higher risk cluster is particularly reminiscent of Blazczynski and Nower's (2002) "emotionally vulnerable" group who engage in gambling and substance use to cope with psychological dysfunction. Notably, although our data contain no biopsychosocial antecedents—and hence we cannot typologically profile participants, nor is it our goal to do so—they do point to the necessity of a "differential targeted prevention approach" (Allami et al., 2017, p. 1164) among Canadian emerging adults according to both gender and risk level. For low-risk male gamblers, a holistic intervention will need to screen for, and potentially address, alcohol dependence; for higher risk male and female gamblers, both psychological distress and drug use should be considered.

Second, the non-significant interaction between gender and depression/anxiety contrasts with other research linking gender and psychiatric co-morbidity. Evidence assessing this link is mixed; internationally, some studies have shown higher levels of depression and/or anxiety among young women (Martin et al., 2014; Merkouris et al., 2016; Sanscartier et al., 2018). Other studies have shown little or no difference across gender in depression, anxiety, and/or psychological distress (Grant, Odlaug, & Mooney, 2012; Husky, Michel, Richard, Guignard, & Beck, 2015; Potenza et al., 2001; Wong et al., 2013). Given this mixed evidence, and the paucity of studies that map syndromic problem behaviours across both gender and gambling severity, our analyses tentatively suggest that depression and anxiety have more to do with severity of gambling than with gender, specifically among emerging adults.

Third, like depression and anxiety, escape-avoidance coping is useful for differentiating the higher risk problem gamblers from their no-risk and low-risk counterparts. We found, however, unlike the case for depression and anxiety, a gendered relationship between escape-avoidance coping style and gambling severity. The significant Gender $\times$ Escape-avoidance interaction term suggests that female gamblers at higher PG risk rely more on escape-avoidance coping strategies than do their male counterparts; gambling for females, then, may act as more of a coping mechanism than it does for men.

This relationship is consistent with other broader studies that show that maladaptive coping differentiates recreational from pathological gamblers among young adults (Bergevin, Gupta, Derevensky, & Kaufman, 2006; Wohl et al., 2006). The gender-specific relationship is also consistent with the work of Getty and colleagues (2000), who found that female problem gamblers rely more on avoidant coping techniques than do their male counterparts. Echoing Kushnir, Godinho, Hodgins, Hendershot, and Cunningham (2016, pp. 977–978), we suggest that this finding may reflect the fact that women are more likely than men to be shame-prone gamblers and therefore more likely to engage in avoidant coping behaviours (see also Schlagintweit,

Thompson, Goldstein, & Stewart, 2017; Yi, 2012). Men, on the other hand, tend to attribute negative consequences of gambling to external factors. Psychological distress may therefore be a consequence of PG for women as much as it is a cause. In any case, our results suggest that escape-avoidance strategies are a risk factor specifically for women with respect to gambling severity and that gambling itself may be one such strategy.

Last, although the simple slope of social support for PG risk level was non-significant across all comparisons, the significant interaction term did indicate a gendered relationship when we compared moderate- and high-risk gamblers with low-risk gamblers. That is, males who reported less perceived social support were more likely than females to belong to the moderate/high-risk group. Thus, our model specifies, by gender, the inverse relationship established by Weinstock and Petry (2008) between social support and gambling severity. This finding is also situated in the wider literature that shows that females tend to have wider, more diverse, and more accessible networks of social support (Mackinnon, 2012; Tinajero, Martínez-López, Rodríguez, Guisande, & Páramo, 2015; Weckwerth & Flynn, 2006). Moreover, Matheson and colleagues (2009) reported that both women and men tend to rely on support-seeking and problem-solving strategies to deal with gambling problems, but that their use diminishes as PG risk increases. Although we did not find any diminishing effects, we can speculate that it may be the case that the men in our sample (a) have less perceived social support because they have objectively smaller networks and (b) do not actively tap their existing networks to deal with gambling-related issues. This finding has particularly important implications for preventing young male gamblers from progressing to higher levels of PG risk.

Limitations of the Study

When considering these results, it is important to keep in mind a few limitations of the study. The first, and perhaps most significant, is the use of cross-sectional data. Because we did not use longitudinal data, we took care not to dismiss the relationship between pathological gambling, gender, and psychiatric co-morbidity on the basis of our non-significant interaction term. The literature on gambling and gender suggests that this relationship may be more relevant to older female gamblers who are into middle adulthood before symptoms of depression/anxiety manifest—therefore, we were careful to restrict our commentary to emerging adults.

Another limitation of the data itself is the relatively small sample size, especially the low count ($n = 15$) of high-risk women in the study. As a result, our ability to generalize to all young adults is limited. Third, the lack of antecedent psychosocial variables in the MLSYA data set, such as family histories and psychological history, prevents us from etiologically linking different symptoms, such as in the pathways model (Blazczynski & Nower, 2002; Scholes-Balog et al., 2015). Further, bivariate correlations and ORs between the PGSI and other study variables showed mostly moderate-to-small effect sizes, possibly because of the way the dependent variable was coded to preserve statistical power and variability among categories. A final

limitation is that we did not include type of gambling activity in our models; the kind of gambling that young adults participate in is associated with some of our study variables. For example, social support is likely higher among those who gamble informally with friends rather than anonymously online or at a casino (see Di Cicco-Bloom & Romer, 2012).

Conclusion

Notwithstanding these limitations, the results of this study show two important implications with respect to screening and intervention of emerging adults at risk for gambling problems. First, we identify clear associations between riskier gambling, drug use, and depression/anxiety. We suggest that, when emerging adults are screened for potential gambling problems, those scoring a 3 or higher on the PGSI should be further screened for psychological distress. These syndromic associations may exacerbate gambling behaviours (Chinneck et al., 2016), meaning that a holistic intervention must be used to address gambling. Those scoring for lower risk for PG, in turn, are at higher risk of engaging in alcohol or substance abuse. Interventions should therefore be different for those at low risk versus those at high risk; it would be unwise to assume that needs across the risk gradient are the same.

Second, for emerging adults at higher PG risk, there are important gender implications with respect to tailoring treatment. Our findings suggest that what differentiates higher risk from lower risk gamblers varies by gender. Maladaptive coping strategies are associated with higher gambling risk for young women, whereas for young men, the more important variable is (lower) perceived social support. Each of these can, in different ways, perpetuate pathological gambling cycles through feelings of shame and isolation, respectively (Weinstock & Petry, 2008; Yi & Kanetkar, 2011). Hence, interventions must be sensitive to gender-specific needs, particularly when dealing with those at higher levels of risk. We suggest that whereas young women at risk for PG should learn more productive coping strategies, young men at risk for PG need to learn how to build accessible networks of social support. The use of a group therapeutic setting may be especially appropriate for young men at high risk of PG (or who are problem gamblers). This finding also suggests that it would be especially worthwhile to undertake further research on the relationship between young men who gamble problematically and how social support may act as a buffer against higher risk behaviours. At present, there is a serious lack of research addressing this relationship.

Last, evidence of gender differences in the correlates of gambling severity, we hope, will encourage further research into the utility of gender-specific interventions for PG and co-morbid disorders. Our findings reinforce the notion that a syndromic model should be used to understand PG and its link to other problem behaviours, including substance and alcohol abuse, maladaptive coping mechanisms, and psychological distress. Crucially, the profile of this syndromic problem behaviour shifts on the axes of gambling severity and gender. Screening and treatment must be multidimensional, touching not only on gambling, but also on mental health and drug and alcohol use

more broadly. We suggest gambling interventions should be tailored according to gender and gambling severity; interventions for substance abuse alone will not be especially effective for higher risk gamblers with depression/anxiety and vice versa. Mapping this intersection is especially important for emerging adults, who require early intervention to stop problematic behaviours. We have taken a first step in this direction, but call for others to continue to explore how gambling patterns simultaneously vary by both gender and gambling severity.

References

- Aalto-Setälä, T., Haarasilta, L., Marttunen, M., Tuulio-Henriksson, A., Poikolainen, K., Aro, H., & Lönnqvist, J. (2002). Major depressive episode among young adults: CIDI-SF versus SCAN consensus diagnoses. *Psychological Medicine*, 32, 1309–1314.
- Afifi, T. O., Cox, B. J., Martens, P. J., Sareen, J., & Enns, M. W. (2010). Demographic and social variables associated with problem gambling among men and women in Canada. *Psychiatry Research*, 178, 395–400. doi:10.1016/j.psychres.2009.10.003
- Allami, Y., Vitaro, F., Brendgen, M., Carbonneau, R., Lacourse, E., & Tremblay, R.E. (2017). A Longitudinal Empirical Investigation of the Pathways Model of Problem Gambling. *Journal of Gambling Studies*, 33, 1153–1167.
- Barnes, G.M., Welte, J.W., Hoffman, J.H., & Dintcheff, B.A. (1999). Gambling and Alcohol Use Among Youth: Influences of Demographic, Socialization, and Individual Factors. *Addictive Behaviors*, 6, 749–767.
- Barnes, G. M., Welte, J. W., Hoffman, J. H., & Tidwell, M. C. (2011). The co-occurrence of gambling with substance use and conduct disorder among youth in the United States. *The American Journal on Addictions*, 20, 166–173. doi:10.1111/j.1521-0391.2010.00116.x
- Bergevin, T., Gupta, R., Derevensky, J., & Kaufman, F. (2006). Adolescent gambling: Understanding the role of stress and coping. *Journal of Gambling Studies*, 22, 195–208. doi:10.1007/s10899-006-9010-z
- Berry, W. D., & Feldman, S. (1985). *Multiple regression in practice*. Thousand Oaks, CA: Sage.
- Blanco, C., Hasin, D. S., Petry, N., Stinson, F. S., & Grant, B. F. (2006). Sex differences in subclinical and DSM-IV pathological gambling: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychological Medicine*, 36, 943–953. doi:10.1017/S0033291706007410

- Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction*, 97, 487–499.
- Canale, N., Vieno, A., Griffiths, M. D., Borraccino, A., Lazzeri, G., Charrier, L., . . . Santinello, M. (2017). A large-scale national study of gambling severity among immigrant and non-immigrant adolescents: The role of the family. *Addictive Behaviors*, 66, 125–131. doi:10.1016/j.addbeh.2016.11.020
- Carbonneau, R., Vitaro, F., Brendgen, M., & Tremblay, R. E. (2015). Variety of gambling activities from adolescence to age 30 and association with gambling problems: A 15-year longitudinal study of a general population sample. *Addiction*, 110, 1985–1993. doi:10.1111/add.13083.
- Chamberlain, S. R., J. Stochl, S. A. Redden, B. L. Odlaug, & J. E. Grant. (2017). Latent class analysis of gambling subtypes and impulsive/compulsive associations: Time to rethink diagnostic boundaries for gambling disorder? *Addictive Behaviors*, 72, 79–85. doi:10.1016/j.addbeh.2017.03.020.
- Chambers, A.R. & Potenza, M.N. (2003). Neurodevelopment, Impulsivity, and Adolescent Gambling. *Journal of Gambling Studies*, 19, 53–84.
- Cheung, N. W. (2014). Low self-control and co-occurrence of gambling with substance use and delinquency among Chinese adolescents. *Journal of Gambling Studies*, 30, 105–124. doi:10.1007/s10899-012-9351-8
- Chinneck, A., Mackinnon, S. P., & Stewart, S. H. (2016). Investigating possible reciprocal relations between depressive and problem gambling symptoms in emerging adults. *Canadian Journal of Psychiatry*, 61, 93–101. doi:10.1177/0706743715625934
- Crockford, D., Quickfall, J., Currie, S., Furtado, S., Suchowersky, O., & El-Guebaly, N. (2008). Prevalence of problem and pathological gambling in Parkinson's disease. *Journal of Gambling Studies*, 24, 411–422. doi:10.1007/s10899-008-9099-3.
- Currie, S. R., Hodgins, D. C., & Casey, D. M. (2013). Validity of the problem gambling severity index interpretive categories. *Journal of Gambling Studies*, 29, 311–327. doi:10.1007/s10899-012-9300-6
- Delfabbro, P. H. (2011). *Australasian gambling review* (5th ed.). Adelaide, South Australia: Independent Gambling Authority of South Australia.
- DiCicco-Bloom, B., & Romer, D. (2012). Poker, sports betting, and less popular alternatives: Status, friendship networks, and male adolescent gambling. *Youth & Society* 44, 141–170.

Edgerton, J. D., Melnyk, T. S., & Roberts, L. W. (2015). An exploratory study of multiple distinct gambling trajectories in emerging adults. *Journal of Youth Studies*, 18, 743–762. doi:10.1080/13676261.2014.992326

Getty, H. A., Watson, J., & Frisch, G. R. (2000). A comparison of depression and styles of coping in male and female GA members and controls. *Journal of Gambling Studies*, 16, 377–391.

Grant, J. E., Odlaug, B. L., & Mooney, M. E. (2012). Telescoping phenomenon in pathological gambling: Association with gender and comorbidities. *The Journal of Nervous and Mental Disease*, 200, 996–998. doi:10.1097/NMD.0b013e3182718a4d

Gupta, R., Derevensky, J., & Marget, N. (2004). Coping strategies employed by adolescents with gambling problems. *Child and Adolescent Mental Health*, 9, 115–120.

Gupta, R., Nower, L., Derevensky, J. L., Blaszczynski, A., Faregh, N., & Temcheff, C. (2013). Problem gambling in adolescents: An examination of the pathways model. *Journal of Gambling Studies*, 29, 575–588. doi:10.1007/s10899-012-9322-0

Hodgins, D. C., Schopflocher, D. P., Martin, C. R., el-Guebaly, N., Casey, D. M., Currie, S. R., . . . Williams, R. J. (2012). Disordered gambling among higher-frequency gamblers: Who is at risk? *Psychological Medicine*, 42, 2433–2444. doi:10.1017/S0033291712000724

Holmbeck, G.N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, 27, 87–96. doi:10.1093/jpepsy/27.1.87

Hounslow, V., Smith, D., Battersby, M., & Morefield, K. (2010). Predictors of problem gambling severity in treatment seeking gamblers. *International Journal of Mental Health and Addiction*, 9, 682–695. doi:10.1007/s11469-010-9292-3

Husky, M. M., Michel, G., Richard, J. B., Guignard, R., & Beck, F. (2015). Gender differences in the associations of gambling activities and suicidal behaviors with problem gambling in a nationally representative French sample. *Addictive Behaviors*, 45, 45–50. doi:10.1016/j.addbeh.2015.01.011

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York, NY: Academic Press.

Kessler, R. C., Andrews, G., Mroczek, D. K., Ustun, T. B., & Wittchen, H.-U. (1998). The World Health Organization Composite International Diagnostic Interview Short Form (CIDI-SF). *International Journal of Methods in Psychological Research*, 7, 171–185.

- Khanbhai, Y., Smith, D., & Battersby, M. (2017). Gender by preferred gambling activity in treatment seeking problem gamblers: A comparison of subgroup characteristics and treatment outcomes. *Journal of Gambling Studies*, 33, 99–113. doi:10.1007/s10899-016-9614-x
- Kushnir, V., Godinho, A., Hodgins, D. C., Hendershot, C. S., & Cunningham, J. A. (2016). Gender differences in self-conscious emotions and motivation to quit gambling. *Journal of Gambling Studies*, 32, 969–983. doi:10.1007/s10899-015-9574-6
- LaBrie, R. A., Shaffer, H. J., LaPlante, D. A., & Wechsler, H. (2003). Correlates of college student gambling in the United States. *Journal of American College Health*, 52, 53–62.
- Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.
- Liquor and Gaming Authority of Manitoba. (2016). *Manitoba longitudinal study of young adults: Summary report*. Retrieved from <https://lgcamb.ca/research/projects/mlsya/>
- Lorains, F. K., Cowlishaw, S., & Thomas, S. A. (2011). Prevalence of comorbid disorders in problem and pathological gambling: Systematic review and meta-analysis of population surveys. *Addiction*, 106, 490–498. doi:10.1111/j.1360-0443.2010.03300.x
- Mackinnon, S. P. (2012). Perceived social support and academic achievement: Cross-lagged panel and bivariate growth curve analyses. *Journal of Youth and Adolescence*, 41, 474–485. doi:10.1007/s10964-011-9691-1
- Martin, R. J., Usdan, S., Cremeens, J., & Vail-Smith, K. (2014). Disordered gambling and co-morbidity of psychiatric disorders among college students: An examination of problem drinking, anxiety and depression. *Journal of Gambling Studies*, 30, 321–333. doi:10.1007/s10899-013-9367-8
- Matheson, K., Wohl, M. J. A., & Anisman, H. (2009). The interplay of appraisals, specific coping styles, and depressive symptoms among young male and female gamblers. *Social Psychology*, 40, 212–221. doi:10.1027/1864-9335.40.4.212
- Merkouris, S. S., Thomas, A. C., Shandley, K. A., Rodda, S. N., Oldenhof, E., & Dowling, N. A. (2016). An update on gender differences in the characteristics associated with problem gambling: A systematic review. *Current Addiction Reports*, 3, 254–267. doi:10.1007/s40429-016-0106-y
- 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, 15–36. doi:10.1007/s10899-016-9608-8

- Moghaddam, J. F., Yoon, G., Campos, M. D., & Fong, T. W. (2015). Social and behavioral problems among five gambling severity groups. *Psychiatry Research*, 230, 143–149. doi:10.1016/j.psychres.2015.07.082
- Mutti-Packer, S., Hodgins, D. C., El-Guebaly, N., Casey, D. M., Currie, S. R., Williams, R. J., . . . Schopflocher, D. P. (2017). Problem gambling symptomatology and alcohol misuse among adolescents: A parallel-process latent growth curve model. *Psychology of Addictive Behaviors*, 31, 447–456. doi:10.1037/adb0000261
- Petry, N. M., & Champine, R. (2012). Gambling and drug abuse. In J. Verster, K. Brady, M. Galanter, & P. Conrod (Eds.), *Drug abuse and addiction in medical illness* (pp. 489–496). New York, NY: Springer.
- Potenza, M. N., Steinberg, M. A., McLaughlin, S. D., Wu, R., Rounsaville, B. J., & O'Malley, S. S. (2001). Gender-related differences in the characteristics of problem gamblers using a gambling helpline. *American Journal of Psychiatry*, 158, 1500–1505.
- Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology*, 25, 111–163.
- Sanscartier, M. D., Edgerton, J. D., & Roberts, L. W. (2018). A latent class analysis of gambling activity patterns in a Canadian university sample of emerging adults: Socio-demographic, motivational, and mental health correlates. *Journal of Gambling Studies*, 34, 863–880.
- Schlagintweit, H. E., Thompson, K., Goldstein, A. L., & Stewart, S. H. (2017). An investigation of the association between shame and problem gambling: The mediating role of maladaptive coping motives. *Journal of Gambling Studies*, 33, 1067–1079. doi:10.1007/s10899-017-9674-6
- Scholes-Balog, K. E., Hemphill, S. A., Toumbourou, J. W., & Dowling, N. A. (2015). Problem gambling and internalising symptoms: A longitudinal analysis of common and specific social environmental protective factors. *Addictive Behaviors*, 46, 86–93. doi:10.1016/j.addbeh.2015.03.011
- Sleczka, P., Braun, B., Grüne, B., Bühringer, G., & Kraus, L. (2016). Proactive coping and gambling disorder among young men. *Journal of Behavioural Addictions*, 5, 639–648.
- Statistics Canada. (2003). *Canadian Community Health Survey (CCHS): Questionnaire for CYCLE 2.1*. Retrieved from http://www23.statcan.gc.ca/imdb-bmdi/instrument/3226_Q1_V2-eng.pdf
- Tinajero, C., Martínez-López, Z., Rodríguez, M. S., Guisande, M. A., & Páramo, M. F. (2015). Gender and socioeconomic status differences in university students'

perception of social support. *European Journal of Psychology of Education*, 30, 227–244. doi:10.1007/s10212-014-0234-5

Toneatto, T., & Wang, J. J. (2009). Community treatment for problem gambling: Sex differences in outcome and process. *Community Mental Health Journal*, 45, 468–475. doi:10.1007/s10597-009-9244-1

Weckwerth, A. C., & Flynn, D. M. (2006). Effect of sex on perceived support and burnout in university students. *College Student Journal*, 40, 237–249.

Weinstock, J., & Petry, N. M. (2008). Pathological gambling college students' perceived social support. *Journal of College Student Development*, 49, 625–632. doi:10.1353/csd.0.004

Welte, J. W., Barnes, G. M., & Hoffman, J. H. (2004). Gambling, substance use, and other problem behaviors among youth: A test of general deviance models. *Journal of Criminal Justice*, 32, 297–306. doi:10.1016/j.jcrimjus.2004.04.002

Williams R. J., & Volberg, R. (2013). The classification accuracy of four problem gambling assessment instruments in population research. *International Gambling Studies*, 14, 15–28. doi:10.1080/14459795.2013.839731

Winters, K. C., Stinchfield, R. D., Botzet, A., & Slutske, W. S. (2005). Pathways of youth gambling problem severity. *Psychology of Addictive Behaviors*, 19, 104–107. doi:10.1037/0893-164X.19.1.104

Wohl, M., Anisman, H., Matheson, K., & Young, M. (2006). Personal luck, outcome expectancies, and subjective appraisals as predictors of health and readiness to seek treatment among young adults. Final Report to the Ontario Problem Gambling Research Centre. Available at: [https://www.greo.ca/Modules/EvidenceCentre/files/Wohl%20et%20al\(2007\)Personal_luck_outcome_expectancies_and_subjective_appraisals.pdf](https://www.greo.ca/Modules/EvidenceCentre/files/Wohl%20et%20al(2007)Personal_luck_outcome_expectancies_and_subjective_appraisals.pdf)

Wong, G., Zane, N., Saw, A., & Chan, A. K. (2013). Examining gender differences for gambling engagement and gambling problems among emerging adults. *Journal of Gambling Studies*, 29, 171–189. doi:10.1007/s10899-012-9305-1

Wynne, H. J. (2003). *Introducing the Canadian Problem Gambling Index*. Edmonton, AB: Wynne Resources.

Yi, S. (2012). Shame-prone gamblers and their coping with gambling loss. *Journal of Gambling Issues*, 27, 1–21.

Yi, S., & Kanetkar, V. (2011). Coping with Guilt and Shame After Gambling Loss. *Journal of Gambling Studies*, 27, 371–387.

Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 55(3–4), 610–617.

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Traitement en groupe incluant des joueurs et des toxicomanes : atteinte des objectifs thérapeutiques et retombées

Group Treatment including Gamblers and Substance Users: Achieving Therapeutic Goals and Benefits

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Résumé

Les traitements en groupe incluant des problématiques de dépendance variées (GPDV), de jeu d'argent pathologique (JAP) et de toxicomanie, ne font pas l'objet actuellement de validation empirique. Conséquemment, la présente étude évalue les retombées des traitements en GPDV auprès de 8 joueurs et de 16 toxicomanes. Par un devis mixte de type simultané imbriqué, l'étude évalue les retombées du traitement sur l'atteinte des objectifs thérapeutiques de réduction ou de cessation du comportement de dépendance. Afin d'esquisser une piste explicative à ces retombées, l'étude examine également la force de la cohésion perçue et l'appréciation de l'hétérogénéité des problématiques de dépendance au sein du groupe. La présence de composantes spécifiques associées au traitement cognitif-comportemental du JAP est évaluée. Les résultats indiquent que 62 % des participants ont atteint leurs objectifs thérapeutiques après le traitement. L'atteinte des objectifs thérapeutiques est associée à la perception d'une forte cohésion au sein du groupe. L'hétérogénéité des problématiques de dépendance au sein du groupe apparaît peu appréciée des participants. Finalement, il semble que les composantes spécifiques du traitement du JAP ne sont pas présentées aux joueurs de ces groupes. À échéance, l'étude démontre la nécessité d'avoir une réflexion sur le recours au traitement en GPDV pour les joueurs et les toxicomanes et des pistes de recherches sont proposées.

Keywords: thérapie de groupe, traitement, étude qualitative, trouble du jeu d'argent, trouble d'utilisation de substance / group therapy, treatment, qualitative study, gambling disorder, substance use disorder

Abstract

Group therapy for multiple addictions, pathological gambling and drug dependency, has not yet been empirically validated. This study assesses the outcome of group therapy conducted with 8 gamblers and 16 substance users. Using a concurrent nested design, the study evaluates the effect of treatment on the reduction and/or elimination of the addictive behaviour. In order to better understand the findings, the study examined participants' perceptions of group cohesion and their opinions on having a diversity of addiction problems within the group. The presence of specific therapeutic elements associated with cognitive behaviour therapy for pathological gambling was evaluated. The results suggest that 62% of the participants achieved their therapeutic objectives through the therapy. The achievement of therapeutic objectives is associated with the perception of a strong connection within the group. The participants did not appear to have had a positive opinion of the diversity of addiction problems within the group. Finally, it appears that the specific elements of cognitive behavioral therapy for pathological gambling, such as gambling specific information and cognitive restructuring of gambling distorted beliefs, are not presented to the gamblers in these groups. The study results demonstrate the need to re-examine the use of group therapy including gamblers and drug addicts, and further avenues of study are proposed.

Le jeu d'argent pathologique se définit par des habitudes de jeu de hasard et d'argent (JHA) inadaptées et persistantes (American Psychiatric Association [APA], 2013). Les personnes aux prises avec des problèmes de JHA seraient caractérisées par la présence de préoccupations pour les JHA, un besoin d'y investir des sommes croissantes d'argent et des efforts infructueux pour contrôler, réduire ou cesser la pratique (APA, 2013) ainsi que par la présence de distorsions cognitives par rapport au jeu et au hasard (Barrault & Varescon, 2012). Cette dépendance peut mener les personnes atteintes à vivre des pertes financières importantes ainsi que des problèmes d'ordre judiciaire, professionnel, social et psychologique (Bronnec, Rocher, Bouju, & Vénisse, 2010; Ibanez, Blanco, Moreryra, & Saiz-Ruiz, 2003; Pietrzak, Molina, Ladd, Kerins, & Petry, 2005).

Au Québec, les services publics offerts aux joueurs pathologiques sont assurés par plus de vingt Centres de réadaptation en dépendance (CRD) et établissements affiliés (Association des centres de réadaptation en dépendance du Québec [ACRDQ], 2013a)¹.

¹En 2016, les Centres de réadaptation en dépendance du Québec ont fusionné avec les différents services de santé régionaux et font maintenant partie du programme Dépendance des Centres intégrés de santé et de services sociaux et des Centres intégrés universitaires de santé et de services sociaux. L'appellation CRD sera conservée dans l'intention d'alléger la lecture.

Dans les CRD, le modèle de traitement cognitif-comportemental, modèle ayant reçu le plus d'appuis empiriques pour le traitement du jeu d'argent pathologique (Adès, 2009; Desrosiers & Jacques, 2009; Toneatto & Ladouceur, 2003), a été mis en place pour la prise en charge de cette problématique (Desrosiers & Jacques, 2009). En effet, au début des années 2000, le ministère de la Santé et des Services sociaux du Québec (MSSS) a offert à l'ensemble des intervenants des CRD une formation au *Programme d'évaluation et de traitement des joueurs excessifs*, élaboré en 2000 par Ladouceur, Boutin, Lachance, Doucet et Sylvain (Allard & Papineau, 2006; Desrosiers & Jacques, 2009).

Afin de répondre aux besoins des CRD, une adaptation du programme à la modalité de groupe (Ladouceur, Fournier, Sylvain, Lachance, & Boutin, 2002) a été développée. En plus de répondre aux besoins cliniques du milieu, l'adaptation du programme à la modalité de groupe s'avère une décision éclairée et tout indiquée pour une problématique de dépendance telle que le jeu d'argent pathologique (Adès, 2009; McCown, 2004). En effet, la thérapie de groupe est la modalité de traitement la plus fréquemment utilisée en Amérique du Nord pour le traitement des problèmes de dépendance, tant chimique que comportementale (Washton, 2014) et mènerait à des gains thérapeutiques importants (Flores & Georgi, 2005; Sobell & Sobell, 2011; Weiss, Jaffee, DeMenil, & Cogley, 2004; Wenzel, Liese, Beck, & Friedman-Wheeler, 2012; Yalom & Leszcz, 2005). Les revues systématiques effectuées sur une vingtaine d'études d'efficacité de traitement du jeu pathologique (modalités individuelle et de groupe) révèlent que les thérapies de groupes composés uniquement de joueurs permettent à ceux-ci de réduire significativement les montants dépensés dans les JHA et le nombre de jours au cours desquels ils jouent mensuellement (Cowlshaw et al., 2012; Pallesen, Morten, Kvale, Johnsen, & Molde, 2005). L'évaluation du *Programme d'évaluation et de traitement des joueurs excessifs* en modalité de groupe révèle que les usagers font une appréciation positive du traitement, qu'ils considèrent le traitement comme efficace et que l'atteinte des objectifs thérapeutiques est similaire à celle rapportée en modalité individuelle, lorsque les groupes sont composés uniquement de joueurs (Allard & Papineau, 2006; Chevalier, Geoffrion, Audet, Papineau, & Kimpton, 2003; Chevalier, Geoffrion, Audet, Papineau, & Kimpton, 2003). Il apparaît toutefois que lorsque les groupes ne sont pas composés uniquement de joueurs, par exemple lorsqu'ils incluent des membres ayant un trouble d'utilisation de substance psychoactive (SPA), le traitement reçu est moins apprécié et jugé comme moins efficace par les joueurs (Allard & Papineau, 2006; Chevalier et al., 2003).

En dépit de ce constat, certains CRD offrent encore aux joueurs d'intégrer des groupes de traitement incluant des usagers aux problématiques de dépendances variées (GDPV). L'approche thérapeutique adoptée par les centres et les thérapeutes, la présence de concomitance entre les problèmes de jeu et de consommation chez certains usagers ou encore le nombre de joueurs intéressés par la thérapie de groupe peuvent expliquer le recours aux GDPV dans certains centres (Allard & Papineau, 2006; Desrosiers & Jacques, 2009; Tremblay & Ménard, 2004). Cependant, il demeure qu'à ce jour, les retombées de ces traitements restent inconnues puisque ce type de groupe ne fait pas l'objet d'une validation

empirique. Outre l'absence de données probantes concernant l'efficacité des GPDV, deux principaux éléments peuvent mettre en doute le recours à ce type de traitement.

Dans un premier temps, l'utilisation des GPDV apparaît potentiellement problématique en raison de l'absence possible de la présentation des composantes spécifiques du traitement cognitif-comportemental du jeu d'argent pathologique, identifiées comme cruciales dans le processus de rétablissement des joueurs (Barrault & Varescon, 2012; Desrosiers & Jacques, 2009; Petry, 2015). Les composantes spécifiques incluent la correction des cognitions erronées multiples qu'entretiennent les joueurs à l'égard du jeu et du hasard, ainsi que les composantes comportementales du programme Ladouceur (Ladouceur et al., 2002). Considérant que, dans les CRD, les usagers aux prises avec des problèmes de consommation d'alcool ou de drogues constituent plus de 80 % de la clientèle et que les joueurs pathologiques en constituent moins de 7 % (ACRDQ, 2013b; Baraldi, Joubert, & Bordeleau, 2015), ces derniers se retrouvent généralement en nombre minoritaire dans les traitements en GPDV. Ce faisant, il est possible de se questionner sur la présentation des composantes spécifiques du traitement du jeu d'argent pathologique puisqu'elles sont non pertinentes pour la majorité des membres du groupe qui ont des problèmes de consommation.

Dans un second temps, certaines données concernant la dynamique des groupes thérapeutiques forcent à s'interroger sur l'impact que peuvent avoir les traitements en GPDV sur le rétablissement des membres du groupe, tant joueur que toxicomane. Selon Sobell & Sobell (2011) et Yalom & Leszcz (2005), la présence de multiples problématiques de dépendance au sein d'un groupe de thérapie pourrait venir altérer ou menacer l'émergence de la cohésion du groupe thérapeutique et ainsi avoir un impact sur le rétablissement de l'ensemble des membres du groupe. La cohésion est un facteur thérapeutique analogue à l'alliance thérapeutique observée dans les thérapies individuelles; elle permet que les membres restent unis et qu'ils adhèrent au groupe et à son contenu thérapeutique (Sobell & Sobell, 2011; Yalom & Leszcz, 2005). Il apparaît que, plus la cohésion d'un groupe est forte, plus la condition des membres s'améliore, que ce soit sur le plan de la diminution des symptômes, de la détresse psychologique ou des difficultés interpersonnelles (Burlingame, McClendon & Alonso, 2011). La force de la cohésion d'un groupe serait influencée par différents paramètres, dont l'homogénéité dans la composition du groupe de thérapie (Burlingame et al., 2011; Flores & Georgi, 2005; Yalom & Leszcz, 2005). Dans le cadre du traitement de la dépendance, Yalom & Leszcz (2005) suggèrent une homogénéisation en fonction de la problématique de dépendance afin de favoriser la formation de la cohésion. Ceci suscite un questionnement quant à l'influence que l'hétérogénéité des problématiques de dépendance au sein des GPDV peut avoir sur la cohésion de ces groupes thérapeutiques et incidemment sur le rétablissement des membres du groupe.

Ainsi, la littérature scientifique porte à croire que le traitement en GPDV peut nuire au rétablissement des membres de ces groupes, considérant son influence possible sur

la cohésion du groupe de même que l'absence de la présentation des composantes spécifiques du traitement du jeu. Cependant, l'absence d'études évaluant un traitement de groupe dans lequel sont inclus des joueurs et des toxicomanes empêche de savoir si ces traitements entraînent des retombées similaires pour ces deux problématiques et si les retombées sont semblables à celles attribuées aux traitements de groupe offerts uniquement à des joueurs ou uniquement à des toxicomanes.

À cet effet, en recourant à un devis mixte, la présente étude pose la question des retombées des traitements en GPDV offerts aux joueurs et aux toxicomanes, et sonde des éléments pouvant constituer des pistes d'explications potentielles aux retombées observées. Les objectifs de la recherche sont d'évaluer les retombées des traitements en GPDV sur l'atteinte des objectifs thérapeutiques d'abstinence ou de réduction des habitudes de dépendance, sur le nombre de jours de jeu ou de consommation ainsi que sur les montants dépensés en jeu ou en substance suite au traitement en GPDV. Comme hypothèse, il est attendu que les toxicomanes sont significativement plus nombreux que les joueurs à avoir atteint leurs objectifs thérapeutiques et à avoir réduit leur nombre de jours dédiés à l'objet de leur dépendance et les montants dépensés dans celui-ci. L'étude vise aussi à examiner la force de la cohésion perçue selon la problématique de dépendance. À cet effet, il est attendu que les scores de cohésion des participants toxicomanes soient supérieurs à ceux obtenus par les joueurs. Afin d'évaluer des éléments pouvant être liés aux retombées observées, l'influence de l'hétérogénéité des GPDV sur la cohésion perçue au sein du groupe ainsi que la relation unissant la cohésion perçue et les résultats du traitement sont examinés. En concordance avec la littérature, il est attendu que les participants ayant atteint leurs objectifs présentent des scores de cohésion plus élevés, et ce, peu importe l'objet de leur dépendance. De manière exploratoire, l'étude vise à recueillir de l'information sur l'appréciation que font les participants de la formule de traitement en GPDV, précisément de l'hétérogénéité des problématiques dépendances. Finalement, l'étude vise à vérifier l'administration des composantes spécifiques du traitement du jeu pathologique dans le cadre des traitements en GPDV. Afin de répondre à ces multiples objectifs, la présente étude recourt à des entrevues réalisées auprès de joueurs et de toxicomanes ayant complété un traitement en GPDV dans un CRD de la région de Québec.

Méthode

Dans l'intention de répondre aux objectifs de l'étude, une approche mixte recourant à un devis de type simultané imbriqué avec prépondérance qualitative (Briand & Larivière, 2014; Jonhson & Onwuegbuzie, 2004), a été sélectionnée. Ce devis implique une phase expérimentale au cours de laquelle les données qualitatives et quantitatives sont recueillies simultanément, bien qu'une priorité soit mise sur les données qualitatives (Bourgault, Gallagher, Michaud, & St-Cyr Tribble, 2010). Ce devis a été utilisé pour connaître les perceptions des usagers et mieux comprendre les membres inclus dans ce type de groupe, dans un contexte où peu d'informations sont disponibles, tout en reconnaissant l'apport essentiel des mesures quantitatives dans

l'appréciation des changements apportés encourus sur les comportements de dépendance et la cohésion.

Participants

Dans le cadre de l'étude, 24 usagers ayant participé à un traitement en GPDV recrutés au CRD de Québec ont pris part au projet : huit étaient aux prises avec une problématique de jeu (groupe *Jeu*) et seize, avec des problèmes de dépendance à l'alcool ou aux drogues (groupe *Toxico*).

Informations sur l'échantillon. Les participants sont âgés en moyenne de 49,2 ans ($ET = 10,8$) et 66,7 % d'entre eux sont de sexe masculin. Ils sont majoritairement sans conjoint, soit célibataires (45,8 %) ou séparés (20,8 %). Près de la moitié des participants (41,6 %) occupent un emploi. La majorité des participants (62,5 %) ont atteint leurs objectifs thérapeutiques par rapport à leur problématique de dépendance. Les informations sociodémographiques selon l'appartenance au groupe *Jeu* ou *Toxico* sont présentées dans le Tableau 1.

Les participants ont également été regroupés en fonction de l'atteinte de leurs objectifs thérapeutiques. Ainsi, 15 participants (62,5 %) ont atteint leurs objectifs de thérapie par rapport à leur problématique de dépendance. De ceux-ci, 3 (20 %) présentaient une problématique de JHA et 12 une problématique de consommation de SPA (80 %). La majorité des participants ayant atteint leurs objectifs (73,3 %) visaient l'abstinence et 26,7 % visaient une réduction des comportements de dépendance. Le tableau 2 présente les informations descriptives des 24 participants à l'étude afin d'aider à la compréhension des données qualitatives de l'étude.

Critères d'inclusion et d'exclusion. Pour être inclus dans l'étude, le participant devait avoir complété en entier un traitement en GPDV dans les un à cinq mois précédant la période de recrutement. D'autre part, étaient sélectionnées pour

Tableau 1
Informations sociodémographiques en fonction des groupes Jeu ou Toxico

	Groupe Jeu ($N = 8$)	Groupe Toxico ($N = 16$)
Âge	53,8 ($ET = 8,9$)	47,7 ($ET = 11,9$)
Sexe masculin	5 (62,5 %)	11 (68,8 %)
Situation d'emploi		
Emploi à temps plein ou partiel	2 (25,0 %)	8 (50,0 %)
Retraité	4 (50,0 %)	2 (12,5 %)
Assurance emploi ou sécurité du revenu	2 (25,0 %)	3 (18,8 %)
Situation conjugale		
Célibataire	1 (12,5 %)	10 (62,5 %)
En couple/marié	4 (50,0 %)	4 (25,0 %)
Séparé/divorcé	3 (37,5 %)	2 (12,5 %)

Tableau 2

Description des participants selon la problématique de dépendance, l'atteinte des objectifs, le score au PGT et le numéro de groupe auquel ils ont pris part

Nom fictif	Problématique de dépendance	Atteinte des objectifs thérapeutiques	Score au PGT	Numéro du groupe de thérapie
André	Joueur	Oui (Abstinence)	30	Groupe 1
Béatrice	Joueuse	Oui (Abstinence)	31	Groupe 2
Charles	Joueur	Oui (Réduction)	36	Groupe 3
Dominic	Toxicomane	Oui (Abstinence)	37	Groupe 4
François	Toxicomane	Oui (Abstinence)	39	Groupe 1
Henri	Toxicomane	Oui (Abstinence)	37	Groupe 6
Isabelle	Toxicomane	Oui (Abstinence)	39	Groupe 6
Jean	Toxicomane	Oui (Abstinence)	27	Groupe 2
Laurent	Toxicomane	Oui (Abstinence)	32	Groupe 4
Marie	Toxicomane	Oui (Abstinence)	37	Groupe 7
Nicolas	Toxicomane	Oui (Abstinence)	30	Groupe 2
Olivier	Toxicomane	Oui (Abstinence)	36	Groupe 8
Éric	Toxicomane	Oui (Réduction)	28	Groupe 5
Gérard	Toxicomane	Oui (Réduction)	35	Groupe 6
Karl	Toxicomane	Oui (Réduction)	32	Groupe 3
Patricia	Joueuse	Non	23	Groupe 5
Quentin	Joueur	Non	32	Groupe 2
Rose	Joueuse	Non	38	Groupe 7
Sylvain	Joueur	Non	22	Groupe 8
Thomas	Joueur	Non	33	Groupe 6
Ugo	Toxicomane	Non	23	Groupe 1
Valérie	Toxicomane	Non	23	Groupe 1
Yolande	Toxicomane	Non	34	Groupe 7
Zoé	Toxicomane	Non	27	Groupe 4

composer le groupe *Toxico* uniquement les personnes ayant obtenu un indice de gravité minimal de 6 à l'une ou l'autre des sphères *Alcool* et *Drogues* et de 3 et moins à la sphère *Jeux de hasard* et d'argent de l'Indice de gravité d'une toxicomanie. Les usagers ayant un indice de gravité de 6 et plus à la sphère *Jeux de hasard* et d'argent, et ayant un indice de gravité de 3 et moins à l'une ou l'autre des sphères *Alcool* et *Drogues* ont été sélectionnés pour composer le groupe *Jeu*. Les usagers recevant simultanément des interventions en modalité individuelle ou présentant des troubles psychotiques sont également exclus de l'échantillon.

Instruments de mesure

Questionnaire sociodémographique. Le questionnaire sociodémographique a été élaboré pour les besoins du projet de recherche. Il contient 8 questions concernant le sexe, l'âge, le statut conjugal, le statut socioéconomique, le milieu de vie, le type d'occupation professionnelle et ainsi que le revenu annuel.

Indice de gravité d'une toxicomanie (IGT; Bergeron, Landry, Ishak, Vaugeois, & Trépanier, 1992). Cet instrument est l'adaptation de l'Addiction Severity Index de McLellan, Luborsky, O'Brien et Woody (1980) traduit et validé par Bergeron et al. (1992). La version de l'IGT utilisée pour ce projet est celle du CRD de Québec qui y a ajouté une section supplémentaire évaluant les habitudes de JHA. Aux fins de l'étude, certaines questions de l'IGT ont été sélectionnées. Les questions utilisées dans les sphères *Alcool* et *Drogues* portent sur les substances consommées, le nombre d'épisodes de consommation et les montants dépensés en SPA au cours des 30 derniers jours. Les questions sélectionnées dans la sphère *Jeux de hasard et d'argent* portent sur les activités de jeux effectuées, sur le nombre de sessions de jeu et sur les montants dépensés au jeu au cours des 30 derniers jours.

Questionnaire sur la perception du groupe de thérapie (PGT) basé sur le Perceived Group Reinforcement Scale (Creswell, Sayette, Manuck, Ferrell, Hill, & Dimoff, 2012). Le PGT est une adaptation française du questionnaire Perceived Group Reinforcement Scale (Creswell et al., 2012) qui permet d'évaluer la cohésion du groupe de thérapie telle que perçue par le participant.

Il contient 13 éléments auxquels on répond sur une échelle de type Likert variant de « Pas du tout » (0) à « Beaucoup » (3) et trois questions pour lesquelles l'échelle est inversée. Plus le score obtenu au questionnaire est élevé, plus la cohésion perçue par le répondant est forte.

La description du questionnaire dans sa version originale ne comprend toutefois pas d'indication concernant les points de césure (*cut-off point*). Pour les besoins de l'étude, des catégories ont été créées en répartissant les scores totaux obtenus au PGT en tertiles, technique pouvant être utilisée pour créer des points de césure en l'absence de mesure étalon comparative (Behlouli et al., 2009). Ainsi, trois catégories ont été créées en fonction des scores obtenus par les participants : la catégorie « faible cohésion » (score de 28 et moins), la catégorie « cohésion moyenne » (score allant de 29 à 35) et la catégorie « forte cohésion » (score de plus de 35).

Canevas d'entrevue qualitative. Ce questionnaire évalue les perceptions des usagers par rapport au changement survenu sur leur problématique de consommation ou de jeu, leur bien-être psychologique et leur fonctionnement social après le traitement en GPDV. Il vise également à recueillir de l'information sur la force de la cohésion perçue au sein du groupe ainsi que l'appréciation de la formule de traitement en GPDV. La présentation des composantes spécifiques du jeu pathologique ainsi que la place accordée à la problématique de jeu pathologique sont également remises en question. Le questionnaire qualitatif comporte 21 questions ouvertes visant à répondre aux différents objectifs de l'étude.

Procédure

Dans un premier temps, les usagers correspondant aux critères de sélection ont été contactés afin de leur expliquer en détail le projet de recherche et solliciter leur

participation. Les usagers acceptant de participer ont été invités à une rencontre individuelle d'une durée approximative de 120 minutes au CRDQ, rencontre qui a été enregistrée intégralement en format audionumérique.

Les rencontres de recherche ont débuté par la présentation du formulaire de consentement. Ensuite, le questionnaire sur les données sociodémographiques a été rempli avec le participant. Une fois ces informations colligées, l'entrevue qualitative a été réalisée. En fin d'entrevue, les questionnaires PIQ, le PGT et les questions sélectionnées de l'IGT ont été remplis à l'oral avec le participant. Une compensation financière de 50 \$ en carte-cadeau d'un marché d'alimentation leur a été offerte en dédommagement pour leur participation.

Cette étude a été approuvée dans son intégralité par le Comité d'éthique de la recherche avec des êtres humains de l'Université Laval (2014-110 A -1/12-12-2014) ainsi que par le Comité d'éthique de la recherche en dépendance (2014-167).

Analyses

Analyses quantitatives. Les analyses quantitatives ont été réalisées sur le logiciel SPSS 14.0 avec un seuil de signification alpha de 0,05. Les comparaisons ont été faites à l'aide d'analyses non-paramétriques en raison de la petite taille de l'échantillon, à savoir des tests exacts de Fisher, des tests de Mann-Whitney, des tests des rangs signés de Wilcoxon ainsi que des tests de Khi-Carré.

Analyses qualitatives. Les transcriptions de l'entrevue qualitative ont fait l'objet d'une analyse de contenu en lien avec les objectifs spécifiques de l'étude. L'analyse a été réalisée selon la technique en quatre étapes de Mayer et Deslauriers (2000). Ainsi, les 24 entrevues ont été retranscrites intégralement sous forme de verbatim avant de faire l'objet d'une préanalyse par lecture flottante (Bardin, 2001).

La codification du matériel s'est effectuée à l'aide du logiciel N'Vivo et a conduit à l'élaboration d'une grille de catégories ayant fait l'objet d'analyses interjuge validant ainsi la grille et le processus de codification. Les analyses d'interjuge réalisées sur N'Vivo présentent un kappa de Cohen de 0,76, ce qui correspond à un accord excellent (QSR N'Vivo, 2015).

L'analyse et l'interprétation des résultats ont été effectuées en faisant ressortir les éléments de convergence et de divergence du discours des participants, afin de produire un compte rendu descriptif des diverses significations retrouvées dans les verbatims (Wanlin, 2007). Au moment de l'interprétation des données, il est apparu que les éléments de convergence et de divergence du discours des participants étaient rattachés à l'atteinte des résultats thérapeutiques, et non à l'appartenance au groupe *Jeu* ou *Toxico*. Ces ressemblances en fonction de l'atteinte ou non des objectifs thérapeutiques en lien avec la problématique de dépendance ont été relevées à l'ensemble des thèmes abordés lors de l'entrevue qualitative. Ce faisant, l'interprétation et la présentation des résultats qualitatifs ont été réorientées afin

de mettre en relief les informations fournies par les participants ayant atteint leurs objectifs thérapeutiques en parallèle à celles des participants n'ayant pas atteint leurs objectifs thérapeutiques par rapport à leur problématique de dépendance.

Résultats

Analyses inférentielles

Atteinte des objectifs des joueurs et des toxicomanes. Le test exact de Fisher indique l'absence de différence significative par rapport à l'atteinte des objectifs entre les joueurs (37,5 %) et les toxicomanes (75 %), ($p = 0,091$).

Cohésion dans le groupe de thérapie des joueurs et des toxicomanes. Les tests du U de Mann-Whitney indiquent qu'il n'y a pas de différence significative entre le score total obtenu au PGT par les groupes *Jeu* (32,62, $ET = 5,87$) et *Toxico* (31,0, $ET = 5,87$), ($U = 53,0$, $p = 0,528$).

Habitudes de jeu et de consommation. Les analyses dénotent l'absence de différence significative avant le traitement entre les joueurs ayant atteint leurs objectifs et ceux n'ayant pas atteint leurs objectifs en ce qui concerne les montants dépensés ($U = 11,0$, $p = 0,571$) et le nombre de jours de jeu par mois ($U = 21,0$, $p = 0,647$). À la suite de la thérapie, les joueurs ayant atteint leurs objectifs ont significativement réduit les montants dépensés en jeu ($U = 6,0$, $p = 0,025$) et le nombre de jours de jeu dans les 30 derniers jours ($U = 6,0$, $p = 0,024$) comparativement aux joueurs n'ayant pas atteint leurs objectifs. Le tableau 3 présente les montants dépensés aux JHA et le nombre de jours de jeu dans les 30 derniers jours avant et après le traitement en fonction de l'atteinte des objectifs des participants joueurs.

Les toxicomanes ayant atteint leurs objectifs ont significativement réduit les montants dépensés en substances à la suite du traitement ($Z = -1,886$, $p = 0,032$) ainsi que le nombre de jours de consommation par mois ($Z = -2,902$, $p = 0,039$). En contrepartie, les toxicomanes n'ayant pas atteint leurs objectifs n'ont pas réduit significativement le nombre de jours de consommation par mois ($Z = -1,604$, $p = 0,250$) ni les montants dépensés en substances au cours des 30 jours précédant l'évaluation ($Z = -0,730$, $p = 0,625$). Le tableau 4 présente les montants dépensés en substances et le nombre de jours de consommation dans les 30 derniers jours avant et après le traitement en fonction de l'atteinte des objectifs des participants toxicomanes.

Cohésion du groupe de thérapie selon l'atteinte des résultats thérapeutiques. Les tests du khi-carré indiquent une différence dans la distribution de la force la cohésion selon l'atteinte des objectifs thérapeutiques ($\chi = 7,751$, $df = 2$, $p = 0,021$). Un test exact de Fisher réalisé sur les catégories forte et faible cohésion indique que les participants ayant atteint leurs objectifs sont significativement plus nombreux à être dans la catégorie forte cohésion que les participants n'ayant pas atteint leurs objectifs ($p = 0,035$).

Tableau 3

Montants dépensés en JHA et nombre de jours de jeu dans les 30 derniers jours avant et après le traitement en fonction de l'atteinte des objectifs des participants joueurs

	Avant le traitement			Après le traitement		
	Objectifs atteints (n = 3)	Objectifs non atteints (n = 5)	U	Objectifs atteints (n = 3)	Objectifs non atteints (n = 5)	U
Montant dépensé aux JHA (\$ CAN)	1377,33 (ET = 1852,5)	1542,00 (ET = 1551,4)	11,0	46,00 (ET = 48,0)	1320,00 (ET = 1095,9)	6,0*
Nombre de jours de jeu dans les 30 derniers jours	14,66 (ET = 10,9)	14,4 (ET = 6,2)	21,0	1,3 (ET = 0,6)	14,0 (ET = 9,0)	6,0*

* = p < 0.05

Analyses qualitatives

Perception de la cohésion dans le groupe de thérapie. L'analyse des entrevues avec les participants révèle un lien entre la perception d'une forte cohésion au sein du groupe de thérapie et l'atteinte ou non des objectifs thérapeutiques. Un sentiment

Tableau 4

Montants dépensés en substances et nombre de jours de consommation dans les 30 derniers jours avant et après le traitement en fonction de l'atteinte des objectifs des participants toxicomanes

	Objectifs atteints (n = 12)			Objectifs non atteints (n = 4)		
	Avant le traitement	Après le traitement	Z	Avant le traitement	Après le traitement	Z
Montant dépensé en substance (\$ CAN)	95,0 (ET = 96,6)	24,7 (ET = 57,5)	-1,886*	302,5 (ET=341,6)	397,5 (ET = 379,1)	-0,730
Nombre de jours de consommation dans les 30 derniers jours	16,33 (ET = 14,61)	3,12 (ET = 8,5)	-2,902*	30,0 (ET = 0,0)	20,0 (ET = 8,6)	-1,604

* p < 0,05

d'unité avec les autres membres du groupe ressort du discours des participants ayant atteint leurs objectifs, et ce, peu importe l'objet de leur dépendance.

Bien, on était comme dans une équipe là. On se comprenait. — *Béatrice, joueuse ayant atteint son objectif*

Finalement oui, on s'est unis. C'est un peu comme une famille, tu ne peux pas toujours être d'accord. C'est sûr qu'il y a des différends, des frictions, du monde qui parle quand ce n'est pas le temps. Mais c'est une famille. — *François, toxicomane ayant atteint son objectif*

Parce qu'on dirait, je ne sais pas, mais, il y a des, c'est comme si des fois, il y a des gens qui sont faits pour aller ensemble. Bien moi, j'avais l'impression qu'on était des gens faits pour aller ensemble. — *Charles, joueur ayant atteint son objectif*

En contrepartie, la création de relations empreintes de respect et la présence d'un sentiment de rapprochement, sans toutefois que se soit créé un sentiment d'unité entre les membres, sont relevées dans le discours des participants n'ayant pas atteint leurs objectifs.

On reste dans le respect, mais le sentiment d'unité, ça, c'est une étape plus lourde ça. Non, pas tant que ça. Un petit peu, tu sais, un petit peu, mais sur l'unité, bien moi, je n'irais pas jusque-là. — *Quentin, joueur n'ayant pas atteint son objectif*

Un rapprochement, mais sans aller plus loin. Peut-être que si on se côtoyait dans la vie, on créerait un vrai lien, mais ça n'arrive pas. — *Valérie, toxicomane n'ayant pas atteint son objectif*

Certains facteurs qui viennent amoindrir le sentiment d'unité ou de cohésion dans les groupes de thérapie ont été relevés dans le discours des participants. Le fait de ne pas s'ouvrir au groupe ou de ne pas partager son expérience avec les autres membres du groupe a été identifié comme un facteur minimisant l'émergence de la cohésion. L'hétérogénéité des problématiques de dépendance au sein du groupe a également été rapportée comme un aspect faisant en sorte qu'il est difficile de créer des rapprochements avec les autres membres. Finalement, les divergences dans les styles de personnalité ont été reconnues comme ayant un impact négatif sur la création du lien interpersonnel qui peut être établi dans le groupe.

Bien, peut-être ceux qui étaient gênés de parler. C'est sûr qu'ils ne sont pas tous à l'aise de parler. C'est normal aussi. Veut, veut pas, c'est difficile de dévoiler ta vie à quelqu'un que tu ne connais pas. Mais ça n'aide pas à créer le lien non plus. — *Jean, toxicomane ayant atteint son objectif*

Je dirais que ce n'est pas tant les différences de problématique ou de substances, c'était la différence de personnalité qui jouait. C'est la personnalité de chaque personne qui faisait des conflits, et non pas la raison pour laquelle on se retrouvait là. — *Dominic, toxicomane ayant atteint son objectif*

Je ne me sens pas vraiment partie prenante parce que, c'est ça, je ne consomme pas, je ne connais pas ça, puis je ne suis pas intéressé à connaître ça. Fait que ça limite beaucoup l'interaction. Quand il y a trop de disparité entre les types de consommation autour d'un même groupe, c'est moins pertinent. — *Sylvain, joueur n'ayant pas atteint son objectif*

Parce que s'il y en a un qui a un problème d'alcool, puis un qui a un problème de jeu, celui qui a un problème d'alcool, il ne comprendra pas celui qui a un problème de jeu, puis l'autre bien, il n'a pas de problème d'alcool fait que... on

ne se comprend pas, on ne s'adonne pas. — *Ugo, toxicomane n'ayant pas atteint son objectif*

Appréciation de l'hétérogénéité des problématiques de dépendance. Tant des aspects positifs que négatifs ont émergé du discours des participants quant aux différentes problématiques de dépendance au sein du groupe. Il appert que la perception positive ou négative de l'hétérogénéité des problématiques de dépendance n'est pas associée à l'atteinte ou non des objectifs de thérapie.

Les aspects positifs relevés incluent la possibilité d'apprendre ou de comprendre une problématique de dépendance différente, ainsi que la possibilité de se reconnaître chez les membres du groupe ayant une problématique de dépendance différente.

Ça ne m'a pas dérangé, je dirais même que c'est le contraire, ça m'a ouvert plus, mettons, sur le côté humain, sur le problème des autres. Parce que je trouvais ça comme... Je ne comprenais pas que quelqu'un puisse être addict du jeu. Mais là, je me suis rendu compte que la dynamique est la même. — *Laurent, toxicomane ayant atteint son objectif*

Alors les six premières rencontres, c'était ça, c'était tous des gens aussi là qui avaient des dépendances différentes, mais finalement, je trouve que c'est correct. Puis en même temps, ça nous fait, ça nous fait peut-être comprendre d'autre chose aussi par rapport justement aux gens qui ont une problématique avec la drogue ou euh ou l'alcool... en tout cas, moi, ça m'a fait voir les gens différemment. — *Rose, joueuse n'ayant pas atteint son objectif*

Mais même si c'est pour un différent problème, c'est la même affaire, c'est la même affaire. Moi j'ai envie de boire, eux autres, ils ont envie de jouer, eux autres, ils ont envie de consommer de la drogue. Fait que ça revient au même. Je trouve... c'est juste la même chose. Moi, c'est de la boisson, eux autres, c'est de la drogue, puis l'autre, c'est le jeu. — *Ugo, toxicomane n'ayant pas atteint son objectif*

Les aspects négatifs recensés en lien avec l'hétérogénéité incluent la difficulté de se reconnaître dans les autres membres du groupe, de partager son expérience avec les membres et un espace limité pour discuter spécifiquement des problèmes de JHA.

Puis là, nous on se retrouve moins là-dedans [*le discours d'un joueur*], en tout cas, moi. Je suppose quand nous on parlait, le gars, le joueur, il ne devait pas aller chercher autant lui non plus là-dedans, dans les discussions qu'on avait. — *François, toxicomane ayant atteint son objectif*

Moi, je préférerais avoir juste des gens qui ont la même problématique que moi, parce que là, dans nos expériences par rapport à la consommation [*dépendance en général*], on parle pas des mêmes choses. — *Sylvain, joueur n'ayant pas atteint son objectif*

C'est sûr que si tout le monde était des joueurs, on parlerait plus de jeu, et ça m'aiderait plus. — *Rose, joueuse n'ayant pas atteint son objectif*

Si c'était possible là, je préfère les gens qui ont les mêmes dépendances, je pense que ça serait plus... intéressant. Je pense qu'il y aurait un plus grand apprentissage dans le partage des gens qui ont une dépendance semblable, dans les difficultés, dans les réussites. Je crois que ce serait plus efficace, un effet plus positif que quand il y a un mixte de consommation. — *Thomas, joueur n'ayant pas atteint son objectif*

Malgré la présence d'éléments positifs relevés relativement à l'hétérogénéité, il ressort des entretiens avec les participants que la suppression de l'hétérogénéité des problématiques de dépendance serait une modification souhaitable dans les groupes de thérapie. En effet, la préférence envers un traitement ciblant plus précisément la problématique de dépendance spécifique des participants ressort du discours. Il est à noter que la spécificité de la dépendance inclut une distinction entre les problèmes de consommation d'alcool et ceux de drogues illicites, en plus du jeu pathologique. Également, le désir d'être inclus dans un groupe de thérapie homogène sur le plan des dépendances est retrouvé dans le discours des participants, qu'ils aient ou non atteint leurs objectifs thérapeutiques.

Peut-être que ce serait bien de plus se centrer sur la problématique, parce que là, c'était trop généralisé. Si c'était plus pointu sur l'alcool, parce que là, c'était généralisé à la dépendance, mais si c'était plus centré peut-être que ça pourrait nous aider plus, nous donner plus de trucs ou de manière de faire [...] Parce que c'était trop vague, trop général les conversations. — *Marie, toxicomane ayant atteint son objectif*

Moi, je pense qu'ils [*les joueurs*]... qu'ils n'ont pas d'affaire là. [...] Je pense qu'ils ont besoin d'un traitement indépendant, tant qu'à moi. — *François, toxicomane ayant atteint son objectif*

J'aurais aimé avoir un groupe juste de joueurs. — *Charles, joueur ayant atteint son objectif*

Bien, j'aurais été plus à l'aise dans un groupe de joueurs, tous des joueurs. — *Quentin, joueur n'ayant pas atteint son objectif*

Je ne sais pas si c'est la bonne solution, mais moi, je mettrais les alcooliques ensemble, la drogue avec la drogue, le jeu avec le jeu. Peut-être que... je verrais ça de même. Ça ressemble un peu aux fraternités qui existent, comme les AA, les NA... — *Ugo, toxicomane n'ayant pas atteint son objectif*

Présentation des composantes spécifiques du traitement du jeu pathologique. Le discours des participants révèle que les composantes spécifiques du traitement du jeu pathologique ne sont pas présentées de manière systématique par les thérapeutes dans les traitements en GPDV. Il ressort du discours des participants qu'elles sont présentées lorsqu'elles sont abordées par les membres du GPDV. Le discours témoigne aussi de la possibilité que les composantes aient été présentées lors de traitements antérieurs réalisés dans d'autres centres de thérapie ou lors des ateliers préparatoires du CRDQ. Il se dégage des propos des participants que le petit nombre

de joueurs dans les GPDV ainsi que des éléments se rapportant au concept unitaire de dépendance sont des explications possibles au faible espace accordé aux discussions sur les JHA ainsi qu'aux composantes spécifiques. Finalement, un besoin d'obtenir plus d'informations sur les composantes spécifiques est identifié dans le discours de joueurs n'ayant pas atteint leurs objectifs.

Ça [*discussion sur l'espoir de se refaire*], j'ai fait ça à la CASA. J'ai déjà fait ça, parce que là, il y avait des ateliers juste pour les joueurs, où on s'adresse spécifiquement à ce que tu viens de mentionner. Mais ici, dans le truc de groupe là, non. — *André, joueur ayant atteint son objectif*

Des concepts directement par rapport au jeu, non. Je n'ai pas de souvenir de ça. C'est-à-dire, c'était plus sur l'idée de dépendance. C'était un peu ça l'idée, c'est qu'il [*le thérapeute*] parlait de dépendance en général et il finissait par nous faire comprendre qu'une dépendance au jeu, une dépendance à la drogue ou à l'alcool c'est une dépendance, la même chose. — *Dominic, toxicomane ayant atteint son objectif*

Oui, ça a été vu, mais encore là, c'est dans le programme de base [*ateliers préparatoires du CRDQ*]. Peut-être un petit peu avec [*le thérapeute*], mais ce n'est pas lui qui amorce le sujet. — *Sylvain, joueur n'ayant pas atteint son objectif*

Non, on n'a pas vraiment parlé de ça parce que, comme j'étais la seule que c'était les machines à sous, on n'est pas allé dans ce sens-là. — *Patricia, joueuse n'ayant pas atteint son objectif*

Mais, il n'y avait seulement qu'une personne qui avait le jeu. Fait qu'on ne parlait pas tant que ça de ce sujet-là. On parlait plus d'alcool ou de dope — *Valérie, toxicomane n'ayant pas atteint son objectif*

Il y a bien des choses, comme celle-là [*concept de l'illusion de contrôle*], qui auraient pu être abordées au niveau du jeu, mais qui ne l'ont pas été, malheureusement. — *Quentin, joueur n'ayant pas atteint son objectif*

J'aurais aimé ça savoir, relié au jeu, comme la théorie. Tu sais, ils disent tout le temps que la machine est comme... à chaque fois que tu pèses sur le piton, c'est un jeu indépendant. C'est en pourcentage, mais... Ils ont dit juste 92 % dans un sens, je suis sûr qu'il y a des règles. J'aurais aimé ça avoir plus de statistiques finalement. Ce serait bon, ce serait meilleur parce que tout le monde qui joue a sa petite théorie, tout le monde a son idée... — *Thomas, joueur n'ayant pas atteint son objectif*

Discussion

Dans le cadre d'une réflexion entourant la pertinence d'inclure concurremment des joueurs et des toxicomanes dans des groupes de traitement de la dépendance, la présente étude avait comme objectif d'évaluer les retombées que peuvent avoir ces traitements sur la problématique de dépendance des membres y participant. L'étude explorait également des éléments pouvant être liés aux retombées thérapeutiques

observées, à savoir la force de la cohésion perçue ainsi que l'appréciation de l'hétérogénéité des problématiques de dépendance au sein du groupe. Dans la même optique, l'étude visait à vérifier si les composantes spécifiques du traitement cognitif-comportemental du jeu d'argent pathologique étaient présentées dans le cadre des GPDV. Pour répondre à ces objectifs, les résultats ont été abordés selon la problématique de dépendance des participants, à savoir les problèmes de JHA ou de consommation de SPA, mais également sous l'angle de l'atteinte des objectifs d'abstinence ou de réduction des comportements de dépendance des participants.

L'étude visait d'abord à évaluer les retombées des traitements en GPDV sur la problématique de dépendance des participants. Au sein de l'échantillon de recherche, 15 participants sur les 24 rencontrés ont atteint leurs objectifs thérapeutiques de réduction ou d'abstinence. Il faut toutefois remarquer que bien que 12 des 16 participants toxicomanes rencontrés aient atteint leurs objectifs, il n'y a que trois joueurs sur les huit rencontrés qui rapportent ce même succès. Bien qu'il n'y ait pas de différence significative entre les joueurs et les toxicomanes de l'échantillon, l'atteinte des objectifs thérapeutiques rapportés par les joueurs à l'étude est inférieure à celle retrouvée dans les études évaluant un traitement offert aux joueurs pathologiques. Selon ces études, entre 70 et 75 % des joueurs traités rapportent avoir atteint l'abstinence à la suite du traitement reçu (Schwartz & Linder, 1992; Stinchfield & Winters, 2001). Il est à noter toutefois qu'il est possible que le taux d'atteinte des objectifs puisse être inférieur à celui retrouvé dans d'autres études en raison de la petite taille de l'échantillon de joueur de cette étude.

L'étude visait également à éclaircir la relation possible entre la présence de multiples problématiques de dépendance au sein d'un même groupe et la force de la cohésion présente dans le groupe. L'hétérogénéité des problématiques de dépendance est identifiée par les participants comme étant un aspect ayant amoindri la force du sentiment de cohésion qui s'est développé entre les membres. Ceci concorde avec la littérature voulant que l'hétérogénéité des problématiques de dépendance pourrait nuire à l'émergence de la cohésion au sein d'un groupe de traitement (Burlingame et al., 2011; Sobell & Sobell, 2011; Yalom & Leszcz, 2005).

En outre, les résultats indiquent que les participants ayant atteint leurs objectifs sont significativement plus nombreux à présenter des scores de cohésion élevés. Ce constat se dégage également du discours des participants : les éléments indiquant la présence d'une forte cohésion sont identifiés uniquement dans le discours de participants ayant atteint leur objectif. Ces résultats semblent appuyer les propos de Burlingame et al. (2011) ainsi que ceux de Yalom & Leszcz (2005) qui notent que la présence d'une forte cohésion est associée à de meilleurs résultats de traitement. Considérant qu'une cohésion forte est identifiée comme précurseur au développement des facteurs thérapeutiques des traitements de groupe identifiés comme essentiels au rétablissement (Yalom & Leszcz, 2005), il est possible de croire que les participants pour qui une forte cohésion ne s'est pas développée n'ont pu profiter de l'ensemble des bienfaits associés aux facteurs thérapeutiques. Incidemment, ceci pourrait contribuer à la non-atteinte de leurs objectifs thérapeutiques (Sobell & Sobell, 2011; Yalom & Leszcz, 2005).

Ensuite, pour nourrir la réflexion sur la pertinence du recours aux traitements en GPDV, l'étude visait à connaître la perception des membres des GPDV par rapport à l'inclusion de personnes présentant des problématiques de JHA ou de consommation de SPA dans le même groupe de thérapie. Certains avantages sont perçus par les participants quant à l'hétérogénéité des problématiques de dépendance dans leur groupe de thérapie. Les avantages perçus concernent la compréhension d'une problématique de dépendance auparavant inconnue ainsi que la possibilité de se reconnaître dans les difficultés vécues par les membres ayant une problématique différente. Ce second avantage fait toutefois l'objet de contradiction. En effet, il ressort également du discours des participants que l'hétérogénéité des problématiques de dépendance amoindrit la possibilité de se reconnaître dans les propos des personnes présentant une dépendance différente. Ceci est semblable à ce qui avait été rapporté par les joueurs inclus dans les groupes de thérapies évalués par Chevalier et al. (2003). La présente étude indique que la différence dans les problématiques de dépendance peut nuire à la reconnaissance de soi dans le discours des autres, tant pour un participant toxicomane que pour un participant joueur. L'hétérogénéité des problématiques de dépendance semble également liée à un sentiment de perte d'efficacité thérapeutique; il ressort du discours des participants, tant joueurs que toxicomanes, que la thérapie aurait pu être plus pertinente et efficace et qu'ils auraient appris davantage si celle-ci avait été exclusivement centrée sur leur dépendance personnelle.

Dans ce sens, il ressort des entretiens que la mise en place de groupes de thérapie homogènes sur le plan de la problématique de dépendance serait une modification souhaitable aux services proposés dans les CRD. Cette recommandation se retrouve dans les discours des participants, sans égard au problème de dépendance pour lequel ils consultaient ou à l'atteinte de leur objectif de traitement, et même lorsque des bénéfices de l'hétérogénéité ont été perçus. En effet, il semble que, bien que des points positifs puissent être relevés par rapport à l'hétérogénéité, des interventions plus ciblées sur le problème de dépendance spécifique pour lequel les participants consultent seraient souhaitables.

Selon les données recueillies sur l'atteinte des objectifs thérapeutiques, les habitudes de jeu ou de consommation et la cohésion, il apparaît que les joueurs et les toxicomanes rapportent d'une manière similaire les impacts de l'hétérogénéité des problématiques de dépendance sur leur rétablissement. Bien que la différence ne soit pas significative, probablement en raison d'un manque de puissance statistique, il demeure que moins de 50 % des participants joueurs ont atteint leurs objectifs, tandis que 75 % des participants toxicomanes les ont atteints. À cet égard, il est possible de croire que les rares informations, voire l'absence d'information fournie concernant les composantes spécifiques du traitement des joueurs pourrait expliquer, du moins partiellement, la disparité entre les participants joueurs et toxicomanes quant à l'atteinte des objectifs de thérapie.

En fonction des informations rapportées par les participants de cette étude, il appert que la place accordée à la problématique des JHA ainsi qu'aux composantes

spécifiques du traitement du jeu d'argent pathologique est minime dans les traitements en GPDV évalués. La présence minoritaire de joueurs dans les GPDV expliquerait, selon les participants, la petite place accordée aux discussions portant spécifiquement sur les JHA. Ainsi, il est possible d'émettre l'hypothèse que l'hétérogénéité des problématiques de dépendance, en plus d'avoir une incidence sur l'appréciation du traitement et la cohésion au sein du groupe, diminue le temps accordé aux joueurs pour parler de leur propre problématique ou être exposé aux composantes spécifiques du traitement leur étant destiné. Cette combinaison d'éléments pourrait expliquer que le taux d'atteinte des objectifs thérapeutiques des joueurs de l'échantillon soit inférieur à ce qui est retrouvé dans la littérature (Schwartz & Linder, 1992; Stinchfield & Winters, 2001).

En somme, certaines conclusions se dégagent quant au recours aux traitements en GPDV, tels qu'ils ont été évalués. Il est à noter que les limites inhérentes à la taille de l'échantillon, à l'exclusion des usagers présentant une double problématique de problèmes jeu et de trouble d'utilisation de substance et de la nature qualitative des données restreignent la généralisation des résultats. Cependant, le recours à un devis de recherche mixte qui, dans un contexte où peu d'informations concernant l'impact des GPDV sur les problématiques de JHA ou de consommation sont disponibles, permet d'enrichir la compréhension de l'expérience des membres inclus dans ce type de groupe. Également, l'absence de manipulation des traitements en GPDV reçus par les participants ajoute à la validité écologique de l'étude. Dans leur ensemble, les résultats de l'étude indiquent que l'hétérogénéité des problématiques de dépendance n'est pas unanimement appréciée des membres de ces groupes et qu'elle constitue une menace potentielle à la cohésion perçue au sein du groupe. Également, il en ressort que la place accordée à la problématique de JHA est insuffisante pour les joueurs en raison de leur nombre minoritaire dans ces groupes de thérapies. En ce sens, les résultats de la présente étude viennent appuyer les recommandations émises par Tremblay et Ménard (2004) ainsi que Yalom et Leszcz (2005) qui indiquent que le recours à des traitements en groupes homogènes sur le plan de problématique à traiter est à privilégier. Cependant, considérant la réalité clinique des centres de traitement de la dépendance, la création de groupes homogènes peut s'avérer complexe, voire impossible (Rawson, 1990). Ainsi, la présente étude impose une réflexion par rapport aux pistes d'intervention à privilégier pour le traitement en groupe de ces problématiques. Des études supplémentaires seraient nécessaires afin d'évaluer si la combinaison d'intervention individuelle au traitement en GPDV permettrait de pallier les lacunes rapportées par les participants de cette étude. Également, il serait nécessaire de vérifier si des interventions destinées à favoriser la cohésion du groupe thérapeutique ou encore l'homogénéisation du groupe en fonction d'autres paramètres tels le sexe ou encore l'âge permettraient de contrer l'influence de l'hétérogénéité des problématiques de dépendance sur la cohésion du groupe et incidemment le rétablissement des membres. À échéance, ces études contribueraient à poursuivre la réflexion amorcée sur le recours à ce type de groupe dans les centres de traitement de la dépendance et à ajouter aux connaissances quant aux stratégies thérapeutiques favorisant le rétablissement des joueurs et des toxicomanes.

Références/References

- Adès, J. (2009). Jeu pathologique. Dans M. Lejoyeux (Dir.) *Addictologie* (pp. 229-238). Paris : Elsevier Masson.
- Allard, D., & Papineau, É. (2006). *Évaluation du programme expérimental sur le jeu pathologique/Rapport synthèse*. Montréal : Institut national de santé publique.
- American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA : American Psychiatric Publishing.
- Association des centres de réadaptation en dépendance du Québec. (2013). *Les centres de réadaptation en dépendance du Québec*. Repéré à : <http://www.acrdq.qc.ca/les-centres/trouver-un-centre>
- Association des centres de réadaptation en dépendance du Québec. (2013). *Profil des clientèles*. Repéré à : <http://www.acrdq.qc.ca/les-centres/profil-des-clienteles>
- Association des intervenants en dépendance du Québec (2016). *Formations AIDQ*. Repéré à ULR : <http://aidq.org/activites-nouvelles/formations/formations-aidq>
- Barrault, S., & Varescon, I. (2012). Distorsions cognitives et pratique de jeu de hasard et d'argent : état de la question. *Psychologie française*, 57(1), 17-29.
- Bardin, L. (2001). L'analyse de contenu (10e éd.). Paris : Presses Universitaires de France.
- Behloul, H., Feldman, D. E., Ducharme, A., Frenette, M., Giannetti, N., Grondin, F..., & Pilote, L. (2009, September). Identifying relative cut-off scores with neural networks for interpretation of the Minnesota Living with Heart Failure questionnaire. In *Engineering in Medicine and Biology Society, 2009. EMBC 2009. Annual International Conference of the IEEE* (pp. 6242-6246). IEEE.
- Bergeron, J., Landry, M., Ishak, A., Vaugois, P., & Trépanier, M. (1992). Validation d'un instrument d'évaluation de la gravité des problèmes reliés à la consommation de drogues et d'alcool : l'Indice de gravité d'une toxicomanie (IGT). Montréal : Recherche et Intervention sur les Substances Psychoactives-Québec.
- Bourgault, P., Gallagher, F., Michaud, C. & St-Cyr Tribble, D. (2010). Le devis mixte en sciences infirmières ou quand une question de recherche appelle des stratégies qualitatives et quantitatives. *Recherche en soins infirmiers*, 103(4), 20-28. doi:10.3917/rsi.103.0020.
- Briand, C., & Larivière, N. (2014). Les méthodes de recherche mixtes. Illustration d'une analyse des effets cliniques et fonctionnels d'un hôpital de jour psychiatrique Dans M. Corbière, et N. Larivière, *Ouvrage collectif: Approche mixte des méthodes*

qualitatives et quantitatives, (pp. 625-646), Presses de l'Université du Québec : Québec.

Bronnec, M., Rocher, B., Bouju, G., & Vénisse, J.-L. (2010). Jeu et addiction. / Gaming, gambling and addiction. *Annales Médico-Psychologiques*, 168(7), 509-512. doi : 10.1016/j.amp.2010.06.004

Burlingame, G. M., Fuhriman, A., & Johnson, J. E. (2001). Cohesion in group psychotherapy. *Psychotherapy : Theory, Research, Practice, Training*, 38(4), 373-379. doi : 10.1037/0033-3204.38.4.373

Burlingame, G. M., Fuhriman, A., & Mosier, J. (2003). The differential effectiveness of group psychotherapy: A meta-analytic perspective. *Group Dynamics: Theory, Research, and Practice*, 7(1), 3.

Burlingame, G. M., McClendon, D. T., & Alonso, J. (2011). Cohesion in group therapy. *Psychotherapy*, 48(1), 34.

Chevalier, S., Geoffrion, C., Audet, C., Papineau, É., & Kimpton, M.-A. (2003). *Évaluation du programme expérimental sur le jeu pathologique. Rapport 8 — Le point de vue des usagers*. Montréal : Institut national de santé publique.

Cowlshaw, S., Merkouris, S., Dowling, N., Anderson, C., Jackson, A., & Thomas, S. (2012). Psychological therapies for pathological and problem gambling. *Cochrane Database Syst Rev*, 11.

Creswell, K. G., Sayette, M. A., Manuck, S. B., Ferrell, R. E., Hill, S. Y., & Dimoff, J. D. (2012). DRD4 polymorphism moderates the effect of alcohol consumption on social bonding. *PloS one*, 7(2), e28914.

Desrosiers, P., & Jacques, C. (2009). Les services en jeu pathologique dans les centres de réadaptation en dépendance. Guide de bonnes pratiques et offre de services de base. Montréal : Association des centres de réadaptation en dépendance du Québec.

Flores, P. J., & Georgi, J. M. (2005). *Substance abuse treatment: Group therapy*. États-Unis : US Department of Health and Human Services, Public Health Service, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher*, 33(7), 14-26.

Ladouceur, R., Boutin, C., Lachance, S., Doucet, C., & Sylvain, C. (2000). *Programme d'évaluation et de traitement des joueurs excessifs*. Québec : Université Laval, Centre québécois d'excellence pour la prévention et le traitement du jeu.

- Ladouceur, R., Fournier, P.-M., Sylvain, C., Lachance, S., & Boutin, C. (2002). *Programme d'évaluation et de traitement des joueurs excessifs : Adaptation du programme à l'intervention de groupe*. Québec : Université Laval, Centre québécois d'excellence pour la prévention et le traitement du jeu.
- Ladouceur, R., Sylvain, C., Boutin, C., & Doucet, C. (2000). *Le jeu excessif : comprendre et vaincre le gambling*. Montréal : Les Éditions de l'homme.
- Mayer, R., & Deslauriers, J. P. (2000). Quelques éléments d'analyse qualitative : l'analyse de contenu, l'analyse ancrée, l'induction analytique et le récit de vie. *Méthodes de recherche en intervention sociale*, 159-189.
- McCown, W. G. (2004). Treating Compulsive and Problem Gambling. Dans R. H. Coombs (Dir.) *Handbook of addictive disorders – A practical guide to diagnosis and treatment* (pp. 161-194). Hoboken, NJ : John Wiley & Sons.
- McLellan, A.T., Luborsky, L., O'Brien, C.P., Woody, G.E. (1980). An improved diagnostic instrument for substance abuse patients: The Addiction Severity Index. *Journal of Nervous and Mental Diseases*, 168(1), 26-33. doi : 10.1097/00005053-198001000-00006
- Pallesen, S., Morten, M., Kvale, G., Johnsen B-J. & Molde, H. (2005). Outcome of psychological treatments of pathological gambling: A review and meta-analysis. *Addiction*, 100(10), 1412-1422. doi : 10.1111/j.1360-0443.2005.01204.x
- Petry, N. M. (2015). Psychosocial treatments for problem and pathological gambling. Dans H. Bowden-Jones & S. George (dir.), *A Clinician's Guide to Working with Problem Gamblers* (pp.123-133). New-York : Routledge
- Perreault, M., White, N. D., Fabrès, E., Landry, M., Anestin, A. S., & Rabouin, D. (2010). Relationship between perceived improvement and treatment satisfaction among clients of a methadone maintenance program. *Evaluation and program planning*, 33(4), 410–7. doi:10.1016/j.evalprogplan.2009.12.003
- Pietrzak, R.H., Molina, C.A., Ladd, G.T., Kerins, G.J., & Petry, N.M. (2005). Health and psychosocial correlates of disordered gambling in older adults. *The American Journal of Geriatric Psychiatry*, 13(6), 510-519. doi: 10.1176/appi.ajgp.13.6.510
- QSR Nvivo. (2015). *Run a Coding Comparison query*. Récupéré de : http://help-nv10.qsrinternational.com/desktop/procedures/run_a_coding_comparison_query.htm?rhsearch=kappa
- Rawson, R. A. (1990). Cut the Crack. *Policy Review*, 5(51), 10.
- Schwarz, J., & Lindner, A. (1992). Inpatient treatment of male pathological gamblers in Germany. *Journal of Gambling Studies*, 8(1), 93-109.

Sobell, L., & Sobell, M.B. (2011). Group therapy for substance use disorders – A motivationnal cognitive-behavioral approach. New-York : The Guilford Press.

Stinchfield, R., & Winters, K. C. (2001). Outcome of Minnesota's gambling treatment programs. *Journal of Gambling Studies*, 17(3), 217-245.

Toneatto, T. & Ladouceur, R. (2003). Treatment of Pathological Gambling: A Critical Review of the Literature. *Psychology of Addictive Behaviors*, 17(4), 284-292. doi : 10.1037/0893-164X.17.4.284

Wanlin, P. (2007). L'analyse de contenu comme méthode d'analyse qualitative d'entretiens : une comparaison entre les traitements manuels et l'utilisation de logiciels. *Recherches qualitatives*, 3, 243-272.

Washton, A.M. (2014). Group Therapy for Substance Use Disorders. Dans G.O. Gabbard (Ed.) *Gabbard's Treatments of Psychiatric Disorder (5^e ed., p. 907-913)*. American Psychiatric Publishing.

Weiss, R. D., Jaffee, W. B., DeMenil, V. P., & Cogley, C. B. (2004). Group therapy for substance use disorders: what do we know?. *Harvard Review of Psychiatry*, 12(6), 339-350. doi : 10.1080/10 673 220 490 905 723

Wenzel, A., Liese, B.S., Beck, A.T., & Friedman-Wheeler, D.G. (2012). *Group cognitive therapy for addiction*. New-York : The Guilford Press.

Yalom, I. D., & Leszcz, M. (2005). *The theory and practice of group psychotherapy (5^e éd.)*. New-York : Basic Books.

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policy paper

National Market Protectionist Gambling Policies in the European Union: The Finnish Gambling Monopoly Merger as a Case in Point

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Abstract

A rapidly growing globalized and digitalized gambling industry has compelled European jurisdictions to take action in order to secure some level of gambling market control, to secure public funds from gambling, and to protect citizens from gambling-related harm. This study concerns the market protectionist endeavour to merge three gambling operators into one state-owned monopoly in Finland in 2017. The justification of the systemic change is analysed in key policy documents and media reporting that discerns the political narratives that nudged the monopoly merger from the idea stage to its completion. Within the narratives, the merger is presented as necessary due to the threats of market intrusion by foreign gambling operators and the likelihood of an internal system implosion framed by European Union (EU) law. The worries expressed in the studied materials plug into a general zeitgeist of globalization. The justifications of the systemic change presuppose the inevitable determination of the change and an innate and constant human desire to gamble. Critical views on the merger were introduced in the media at a late stage, stressing the role of the media as a facilitator and manufacturer of political consent. The study demonstrates how market protectionist justifications can, through the maintenance of a regulated gambling market, assure preservation of national public funds obtained from gambling in the EU. The official gambling policy objective of securing public health played a secondary role in the process.

Keywords: gambling policy, justifications, policy problems, media analysis, Finland

Résumé

La croissance fulgurante de l'industrie du jeu, mondialisée et numérisée, a incité les autorités européennes à prendre des mesures afin d'assurer un certain contrôle sur ce marché, de garantir les fonds publics provenant du jeu et de protéger les citoyens des

dommages liés au jeu. Cette étude porte sur la tentative protectionniste de la Finlande de fusionner trois exploitants de jeux d'argent en un monopole d'État en 2017. On analyse les raisons justifiant le changement systémique dans des documents politiques clés et des reportages dans les médias en mettant en évidence le contenu narratif politique qui a conduit à la fusion du monopole, depuis la naissance de l'idée jusqu'à sa concrétisation. Dans ce contenu narratif, la fusion est présentée comme une nécessité en raison des menaces d'intrusion par des exploitants de jeux étrangers et la probabilité d'une implosion du système interne encadré par le droit de l'UE. Les inquiétudes exprimées dans les documents analysés cadrent avec une tendance généralisée à l'égard de la mondialisation. Les fondements qui sous-tendent ce changement systémique présupposent l'inévitabilité du changement et un désir inné et constant de jouer chez l'être humain. Les points de vue critiques sur la fusion sont présentés tardivement dans les médias, ce qui confirme le rôle des médias comme facilitateur et créateur de consentement politique. L'étude montre que les justifications protectionnistes du marché peuvent, par le maintien d'une réglementation du marché des jeux, garantir l'apport de fonds publics nationaux générés par les jeux de hasard dans l'UE. L'objectif officiel de la politique en matière de jeu visant à protéger la santé publique a joué un rôle de second plan dans le processus.

Introduction

In countries all over the world, a rapidly growing globalized and digitalized gambling market is calling for adjustments in gambling policies and legislation. A common concern pertains to the preservation of state incomes from gambling revenues threatened by the growth of an unregulated online market (Laffey, Della Sala, & Laffey, 2016; Myllymaa, 2017). In Finland, whose residents spend the second highest amount on gambling in the European Union (EU), this represents a significant part of the state budget: 1.2 billion euros in 2014, 2.2% of total government revenue (Roukka, 2016; "The World's Biggest Gamblers," 2017). Although the lack of reliable European-level statistics on gambling makes it difficult to compare other governments' dependence on gambling revenues, in Sweden, a country with a similar monopoly system (which will be replaced with a licensing system in 2019), gambling revenue constituted 0.7% of total government revenue in 2015 (Carlgren, 2018; Lotteriinspektionen, 2017). In Finland, the proceeds from the lottery tax (218 million euros in 2014) are added to the general budget of the state. The remainder of the total gambling revenue (ca. 1.0 billion euros) is diverted into grants for activities in arts, science, sports, and promotion of health and wellbeing. For most of the beneficiaries, gambling revenue is the most important source of income. Until 2017, a system with three state-controlled monopoly operators with three separate product palettes—lottery, slots, and horse betting—assured in principle that gambling operators did not compete internally while circulating gambling incomes for the public good. In 2017, the three operators were merged into one state-owned gambling monopoly that

operates all legal forms of land-based and online gambling (lotteries, slot machines, casino games, horse and sports betting).

This study concerns the political justification of introducing a more centralized monopoly system in Finland. This was an exceptional solution in view of how other EU member states have responded to recent gambling market transformations. The only other European country that has chosen to focus on safeguarding its monopoly system is fellow Nordic country Norway, a member of the European Free Trade Association, a partner of the EU (cf. Borch, 2015). Most EU countries have chosen to open up their online gambling markets to operators in other member states (lottery being the only game that is often kept within a monopoly structure) to the extent that public gambling revenues are still secured through taxation and licence fees (Laffey et al., 2016). The EU thus seems to be open to considerable discretion among member states to internally accommodate the contradictory aims of public health and fiscal policy in gambling market regulation (Doukas & Anderson, 2008; Van den Bogaert & Cuyvers, 2011).

In light of EU law, market restrictions such as a monopoly cannot be justified by the fiscal importance of gambling revenues to a member state (Laffey et al., 2016). A passable public health justification for the sustenance of gambling monopolies in the EU is the prevention of gambling-related harm (e.g., Laffey et al., 2016; Myllymaa, 2017, pp. 233–234; Tammi, 2008). This justification was also pleaded in 2017 when the three Finnish state-controlled gambling monopoly operators—Veikkaus, RAY, and Fintoto—were merged into one state-owned monopoly with a gross gaming revenue of 1.8 billion euros and exclusive rights to all gambling (with the exception of one operator, PAF, established in the autonomous jurisdiction of the Åland Islands).

The Finnish case is worth highlighting in a discussion that principally centres on how states regulate harmful products with the contradictory aims of public profit maximization and public health. Gambling policies are often criticized for their incoherence, particularly in the EU. Laffey et al. (2016, p. 13) argue that member states in the EU have given priority to national economic interests and only “when it suited their case, used arguments about public health.” Similarly, Myllymaa (2017) calls the discourse on gambling in the EU an “organized hypocrisy” (p. 233): Member states have learned to use the public health arguments in order to justify the national protection of state incomes from gambling.

In order to unfold how the unique monopoly merger was discursively enabled and scaffolded in political and popular discourse, we used Carol Bacchi’s “What’s the problem represented to be?” (WPR) approach in this study, which inquires into the policy problem representations, deliberation, and discourse in policy documents and in mass media materials. We discerned the storylines of WPR stories that pushed the problem solution towards the fusion of gambling operators into one state-owned monopoly company.

Methods

The policy material consisted of publicly available key policy documents ($N = 4$) and media coverage ($N = 82$) of the gambling monopoly merger. The inclusion criteria for the key policy documents were that they would discuss the official justifications and aims of the policy change during the different stages of the legislative process. Of all such documentation available, only two policy documents were excluded: the statements by the two committees of parliament, which were assessed as not introducing any novel justifications of interest for the scope of this study. One of the weightiest policy documents in the merger process was a report that introduces three alternative monopoly system models prepared for the government for selecting the most suitable solution (Ministry of the Interior, 2015). The preparation of the report was initiated in January 2015, shortly after the government in December 2014 had decided that a merger of the existing monopoly operators was needed that involved either all three or only two of them. The report was written by officials, but the representatives of the beneficiaries of gambling revenues (i.e., civil society organizations) were also involved when the sections on revenue distribution were considered. Another key policy document in the process was the government's monopoly merger proposal to parliament (Finnish Government, 2016). This document contains justifications for the necessity of merging all three operators into one state-owned monopoly. The proposal was written by officials but statements by key stakeholders were integrated. In the Finnish Parliament, a committee is typically given responsibility for the preparation of government proposals that will be voted on in a plenary session of parliament. The tasks of the committee involve inviting statements from other committees. The statement provided by the Social Affairs and Health Committee of the Parliament (2016) and a report by the Administration Committee of the Parliament (2016) were both included in the data, as they contained amendment requests to the original government proposal. Both committees heard experts and stakeholders in the preparation stage of the statements.

The media material consisted of a corpus of 82 Finnish media items. A total of 54 text items were collected through the web-based archive service of the largest national daily newspaper, *Helsingin Sanomat* (*HS*). *HS* is a politically unbiased mainstream publication that serves the study aim of examining public discourse regarding a political matter. *HS*, which is the largest daily in the Nordic countries, has, over the years, prevailed as a powerful and influential institution in Finnish society (Rahkonen, 2007, p. 86). Additional media materials concerning the gambling monopoly merger were collected through Google News and Google with search term combinations such as “Veikkaus RAY Fintoto merger,” “new monopoly Veikkaus,” and “the gambling fusion” (search terms in Finnish: *Veikkaus RAY Fintoto yhdistyminen*, *uusi monopoli Veikkaus*, *rahapelifuusio*, respectively). Through this strategy, 28 additional media items, mainly from different Finnish regional newspapers (printed and online) and Yle News, were collected.

Quality control of the media items was assured by assessing each item in terms of source (media publication): 10 items by Yle (Finland's public broadcasting company),

11 by regional newspapers (such as *Karjalainen* and *Keskipohjanmaa*), four by *Talouselämä* (one of the biggest business newspapers in Nordic countries), two by *Ilta-lehti* (Finnish evening paper, tabloid), and one by MTV (commercially owned online and television media company). These are all well-known, established journalistic products in the Finnish media landscape. They are listed in media directories (such as earthnewspapers.com) and their dissemination and circulation are registered, for example, by Media Audit Finland. The entire set of media material ($N = 82$) contained a variety of media text genres, including news pieces, analyses, and short notices. The material was published between September 2014 and June 2017, and it spanned the period from when the question of a merger first started to appear until the monopoly was established and put into practice.

To discern the functions of different types of reasoning in the deliberation of the systemic change (cf. Fischer, 2012), we used Carol Bacchi's (2009, 2016) WPR question as an analytical vehicle. Bacchi's approach is based on genealogical and post-structural ontology in which policies are not regarded as solutions or responses to pre-existing problems per se, but the articulation of problems constitutes policy questions. This distinguishes WPR from mainstream public policy analysis in which policies are understood as a matter of processing problems that societies or political systems are facing (see Hoppe, 2013). For example, in their authoritative *Handbook of Public Policy Analysis*, Fischer, Miller, and Sidney (2007) see public policy analysis as historically entangled with a problem-solving function: "Policy analysis emerged to both better understand the policymaking process and to supply policy decision makers with reliable policy-relevant knowledge about pressing economic and social problems" (p. xix). In public policy analysis, policy problems are thus often presupposed to exist uncritically and self-evidently outside policy process and outside politics. The analytical value of WPR lies precisely in its focus on the political aspects related to the constitution of policy problems.

In contrast to mainstream public policy analysis, WPR premises that government in contemporary societies takes shape through problematizations, that is, through different ways of constituting problems in policies (Bacchi, 2015). In other words, instead of accepting the self-evident nature of policy problems, WPR focuses on critically questioning whether particular policy problems can be analysed as being constituted and how they might be connected to the practices of government. This focus is narrated through public stories that imply certain solutions. The WPR approach is a good companion to political sociology views on societal structure as being articulated and reproduced in political construction rituals (see Heiskala, 2000). These problem representations play a unique role in the constitution of social problems because they are supported by the legislative apparatus and the production of government knowledge, and they become institutionalized over time. Unlike many competing problem constructions, the problem representations that policies enact can be enduring: "They exist *in the real*" (Bacchi, 2016, p. 33, emphasis in the original). In the case of the Finnish gambling monopoly merger, the newly enacted system was discursively construed in problem representation stories (WPR stories) during the deliberation and preparation phase.

In practice, the WPR approach consists of seven analytical steps with related questions (for details, see Bacchi, 2009, 2015, 2016). The questions do not constitute a rigid methodology but more of a *perspective* that is applied to policy cases, and researchers who use the approach need not take into account all of the questions (Bacchi, 2015, p. 133). For this article, we focus mainly on the two first analytical steps to discern the stories that push the question towards a resolution: Question 1: What is the problem represented to be in a specific policy? Question 2: What implicit presuppositions or assumptions underlie this representation of the problem?

As “public policies *constitute* policy ‘problems’” (Bacchi, 2009, p. 2, emphasis in the original), the purpose of Question 1 is to reveal what is thought to be problematic within a concrete policy proposal, in this case the Finnish monopoly merger. Bacchi (2015) considers Question 1 as commonsensical: “What we propose to do about something indicates what we think needs change and, hence what we think is problematic” (p. 132). Policies usually consist of many proposals and it is possible that there are multiple problem representations within a policy, even contradictory problem representations. The purpose of Question 2 is to analyse the presuppositions underlying the policy problem representations. The task here is to identify the conceptual logic implied by the problem representation, that is, the often deep-seated cultural and political meanings that make the problem representation coherent and intelligible (Bacchi, 2009). Moreover, governing presupposes that the governed individuals or populations possess certain kinds of qualities, self-identities, or capacities for action (Burchell, 1991). In short, the practices of government presuppose the existence of certain kinds of subjects.

We used the qualitative analysis software tool ATLAS.ti when structuring and analysing the material (hereafter referred to as coding). Coding of the policy documents focused on identifying the problem representations and corresponding argumentation and logic (Bacchi’s Questions 1 and 2). The aim of coding the media material was to group aspects of it that allowed us to discern coherent stories of policy problem representations, argumentations, and justifications regarding the merger. We called these WPR stories.

In line with our overall framing of a critical policy study, the media material served not only to unfold a public discussion, but also to provide insight into the media’s bystander and co-constructive role in the problem representations surrounding the policy change. The media was thus seen as intervening in the political life that contributes to the formation of plural solidarities or “publics” (cf. Cottle, 2006). The public’s role in systemic change such as the merger of the three monopoly operators can be viewed as parallel to and entangled with the discursive strategies of other democratic institutions, such as the executive and representative power involved in the problem constructs of the policy documents. In questions that are raised and suggested by the government and decided through parliamentary processes, one role of the media becomes to inform citizens about the political processes and to serve by providing contextualizing, critical, and supportive explanations of the developments in the government sphere.

Results

Four Storylines Pushing Towards a Resolution

After structuring and analysing the material, four main WPR storylines materialized. The stories, which partly overlap in their argumentation, involve problem constructs that are portrayed as being solved through the state gambling monopoly fusion. The first story concerns the threat of an imploding gambling policy system due to its non-compliance with the EU framework. The second story draws on a general zeitgeist regarding great and rapid global technological transformations and the need for Finland to stay informed and competitive. The motif of the third story is closely related to the second one and concerns the need to protect the national gambling policy system against outside forces in terms of online operators. The fourth story can be viewed as a meta-narrative that comments on how the process was able to gather political consensus for systemic change. This storyline goes beyond the representation of the three-operator monopoly system as a problem: It also underlines the key WPR idea that the new policy constituted the construct of the old monopoly system as a problem.

Implosion storyline: Internal competition. Politicians, particularly the representatives of the Minister of the Interior, used the concept of political will to push the developments in the direction of the monopoly merger. “The political will is to sustain the monopoly system. For this we have the support from the European Commission,” stated Päivi Räsänen in *HS* in December 2014 (M. Nieminen, 2014). The EU had many roles in the reasoning around the situation: as a threat to the current system (with EU law running the errands of the free market competition), as a guarantee for a good system (sustaining a monopoly), and as a frame of reference to adapt to in line with both the monopoly exemption from the free market and its expectations (which do not allow internal competitors to compete while leaving other EU operators outside their market). The message from policy makers was that the new system would be safe and that the Finnish people could put their trust in it to continue to involve all components of importance (Junkkari & Nieminen 2014; M. Nieminen, 2014; Raeste, 2015a).

During the preparation of the gambling policy change, the Finnish government represented the three-monopoly system as problematic in the policy documents in view of EU law, with reference to the risk of internal competition developing between the three existing Finnish gambling monopoly operators. To avoid internal competition, each monopoly operated a distinct set of games (in principle: lotteries and sports betting, slots and casino games, and betting on horse races). However, the products could, especially in their online variants, begin to resemble each other to the degree that an internal competition could start to threaten the monopoly system. As non-Finnish gambling operators in the EU would not be able to compete with the Finnish monopoly operators, this could be viewed as discriminatory against operators from other member states and thus entail a future breach of EU law. Another risk for a possible situation of internal competition put forward by the government was an increase in the marketing of gambling products, which would

be at odds with the official main aim of Finnish gambling policy: the reduction of social and health problems related to gambling (Ministry of the Interior, 2015). A one-operator monopoly was argued to remove the risk of such internal competition (Ministry of the Interior, 2015).

Media reports also represented the three-operator system as carrying inherent risks of being in breach of EU law. Prime Minister Stubb mentioned the risk that internal competition within the three-operator system could conflict with EU law (Junkkari & Nieminen, 2014). Chief Secretary Päivi Nerg feared that the gambling products of the three operators would start to overlap and that then there would be a risk that someone would complain about this situation to the EU, and the European Commission would get involved again (Palojärvi, 2015). Nerg was referring here to the infringement proceedings that the European Commission commenced against Finland and several other member states in 2006. The European Commission suspected that the regulation of online gambling in the member states in question was in conflict with EU law. The infringement proceedings against Finland were brought to an end in November 2013 when the European Commission declared that, after amendments were made to the Lotteries Act, the Finnish legislation was no longer in conflict with EU law.

The monopoly merger was considered to be justified in terms of competition; Nerg felt it should go ahead in order to better compete with operators from abroad and to prevent internal competition between existing operators (Palojärvi, 2015). With a one-operator monopoly system, the internal competition dilemma would be solved, explained the Minister of the Interior, Minister Räsänen, in a news piece in *HS* in March 2015 (Raeste, 2015a).

In this storyline, the judicial and economic justifications of the merger were emphasized. The merger was represented as a preemptive measure to guarantee the future of the gambling monopoly system. This mode of representation was readily accepted in the media and left largely unproblematic, especially in the early stages of reporting. The storyline was also closely related to another storyline in which the merger was represented as a necessity determined by the *zeitgeist*.

Zeitgeist: We need to be up to date! In the policy documents, the one-operator monopoly system was represented as one that would be more soundly protected from any future charges of violation of the free market principles of the EU:

In this alternative, the future development of the rising trend of overlaps between the game products, generated by *the changes in the operational environment* [emphasis added], and the likely, and from the EU law perspective problematic, competition between the operators will be removed. (Ministry of the Interior, 2015, p. 41)

The alternatives to the merger of the three operators were (a) the merger of only Veikkaus and RAY and (b) the maintenance of the old system (Ministry of the

Interior, 2015). In the previous quotation, the problem of possible unacceptable competition between the three monopolies was considered to be related to “changes in the operational environment.” The fear of unwanted competition between the existing Finnish operators was no longer represented as merely a legal matter. It was suggested that, because of technological development and changes in customer preference, the product ranges of the three operators would start to overlap. In short, the idea that each monopoly could operate a set of gambling products that was clearly distinct from the other two sets of products was becoming an obstacle to developing attractive new gambling products: “It is possible to modernize the gambling supply within the monopoly system, but the three-operator system curtails this possibility” (Finnish Government, 2016, p. 26).

In the media texts from 2014 to 2015, when the problem was first introduced, government representatives were justifying the need for change in the system by referring to the rapid development of the gambling business as a result of digitalization. Prime Minister Alexander Stubb stated that because of digitalization and online gambling, the whole gambling industry was being reorganized globally (Junkkari & Nieminen, 2014). He pointed out the need to answer to new demands, as the character of gambling had changed to the extent that the changes threatened the old gambling system. The discussions involved connotations of great transformations for which Finland must be on the alert. Minister of the Interior Päivi Räsänen explained that “we need to be up to date with what’s going on” and related it to the same technology-change zeitgeist (M. Nieminen, 2014). Preparation for the system change was accounted for as a reaction to the rapid and pronounced transformations in gambling environments, in particular the increase in online gambling.

The new technological developments in the gambling sector formed a storyline through which the Finnish government represented the existing three-operator gambling monopoly system as problematic. What materialized was a problem construct of market pressure that demanded active policymaking. Finland and the Finnish gambling operators were represented to be in a situation in which urgent reaction to the demands of the “zeitgeist” was necessary. The great technological, social, and economic forces of development were represented as forcing the merger of the three operators.

In the constitution of the three-operator gambling system as problematic, a specific presupposition underlay the zeitgeist storyline: an *erasure of agency*. This term refers to all of the ways in which technological development or more general changes in operational environments are represented in a deterministic way. The agency and capacity of the government and the Finnish gambling operators was undermined: “In the development of gambling products one tries to react to changes in gambling behaviour and to utilize the technologies commonly employed by consumers” (Ministry of the Interior, 2015, p. 22).

Within this storyline, the Finnish government, operators, and other stakeholders materialized as passive bystanders in the currents of this determination. The passivity or erasure of active agency in terms of possibilities to manage market development

functioned as a way to justify and emphasize the *necessity* of revising gambling policy. Interestingly, in the policy documents, Finnish actors were considered to be endowed with active agency only when the beneficial effects of the new policy were discussed: “In a one-operator gambling monopoly model there is . . . a need to still define the forms of gambling that can be legally operated. *In this way, it is possible to direct the development of gambling products in advance to an acceptable direction* [emphasis added]” (Finnish Government, 2016, p. 28).

The Finnish government was represented in the quotation as capable of actively directing the development of gambling products in Finland in the case of a one-operator system. This enabling of agency stands in stark contrast to the erasure of agency mode of representation that permeated most of the discourse on technological development in the material. The Administration Committee of the Parliament (2016) argued in its report that “by developing new legislation it will be possible to influence the prevention of an unlawful foreign supply of gambling as the range of gambling products diversifies” (p. 8). In both texts, active agency—in terms of an independent, strong, capable, and able state—emerged as a way to remedy the effects of technological development about which the Finnish institutional actors were represented as having had no part. The presupposition of erasure of agency can thus be seen as a discursive technique that underlined that the need for the merger did not stem from national economic interests (problematic from the EU law perspective), but was determined by forces not under Finland’s control.

Protection: Channelling the desire to gamble. In the third storyline, the merger was represented as a matter of protecting the gambling monopoly system against the foreign gambling operators: “If the Finnish gambling supply cannot keep up with international developments, the capability to channel [demand] to the domestic monitored gambling supply will weaken” (Finnish Government, 2016, p. 26). In this quotation, the three-monopoly system is represented as problematic because of the possible future inability of the Finnish gambling system to “channel” the gambling demand to legal gambling alternatives that are operated by the existing three monopolies. The problem would thus be that the operators outside the Finnish jurisdiction, with their new innovative gambling products, would attract a growing share of Finnish gambling. As a result of this development, should it happen, the foundations of the Finnish gambling system would be eroded.

Variation of the same storyline was also found in the media material. The media texts refer to the government’s conviction that a one state-owned monopoly could provide gamblers with safer and more controllable game types (Raeste, 2015b). According to the newspaper *Karjalainen*, there was an expectation that the new monopoly could develop more efficient control tools for helping problem gamblers to manage their gambling (“Uusi Veikkaus on aloittanut tointansa,” 2017). Thus, it would make sense to encourage the Finns to play the games of the national monopoly.

The idea of channelling was supported by the problematic presupposition of *naturalization of the desire to gamble*. In the naturalization of the desire to gamble,

the term *channelling*, as in orienting or steering in a certain way, constituted a key concept. But what, then, was being channelled? The answer was “desire,” as shown in the following quotation, in which the views of the European Commission are discussed: “The Commission saw that Finland had the regulations necessary for guaranteeing that a policy of monitored growth, which attempts to *channel the desire to gamble* [emphasis added] into monitored operations, is applied to the gambling monopoly” (Finnish Government, 2016, p. 19).

In the same document, the desire to gamble was also mentioned when the foundations of the Finnish gambling policy were discussed: “income acquisition by *exploiting* [emphasis added] people’s desire to gamble is only allowed in a limited scale and only for the purposes of charity or to support other ideological activities” (Finnish Government, 2016, p. 6). It is important to notice here that desire, in the sense given to it in the context of this document, referred to striving for fulfilment of innate needs that are not deliberately willed. Desire thus enacted meanings that associated it outside the social or political sphere. This was also highlighted by discursively representing desire to gamble as something that can be exploited, that is, something beyond the conscious rational calculus (see O’Malley & Valverde, 2004).

The previous two quotations are the only mentions of the desire to gamble in the analysed documents. More often it was the notion of “consumer demand” that was being channelled. The government needed to channel consumer demand or the desire to gamble. Channelling, understood as a practice of government, presupposed a population with the desire to gamble that needed to be satisfied through gambling provision. Channelling also presupposed that desire is a permanent feature of the population: Channelling would not make sense if prohibiting all gambling did away with the desire.

Thus, in the logic of channelling gambling, desire to gamble was represented as a permanent feature of the population. This presupposition was, we argue, a politically construed “naturalization of the desire to gamble.” In the constitution or problematization of the three-operator gambling system as a policy problem, this presupposition had a specific function. In the policy problem representation, the channelling capacity of the three-operator system was in danger because Finnish legislation precluded the possibility of Finnish operators to develop novel products that would channel the desire to gamble to the products of the monopoly operators. Insofar as the desire to gamble was represented as a constant, the possibility of creating new gambling demand through marketing and product development was excluded a priori from the logic of channelling. Moreover, the negative consequences of gambling were similarly presupposed to be natural and inevitable (see Livingstone et al., 2018). If the desire to gamble was presumed to be a variable instead of a constant, marketing and product development would create new demand and more gambling-related harms. The political value of the naturalization of the desire to gamble seemed to be precisely related to this: It undermined any calls for gambling policies that decreased demand.

Reaching a political consensus. The fourth storyline that emerged from the media material showed how the old three-operator system was construed as a problem.

At the very first stage of the merger discussion, the voices represented in the media material were not all in favour of the change of the old three-operator monopoly system. Critical remarks were especially raised by the civil society beneficiaries of gambling revenues (M. Nieminen & Niskakangas, 2014; M. Nieminen & Pusa, 2014). A discussion that was lacking from the policy documents, but that was highly visible in media reporting, was the importance of gambling revenues for the public good. Finland has a unique system in which a large part of the support for civil society organizations stems from earmarked gambling revenues. This circumstance has oriented the general public discourse towards presenting gambling as a national good deed—a view that underpins a strong general legitimacy of the gambling system (Järvinen-Tassopoulos, 2012; Matilainen, 2017). According to media quotes of Minister of the Interior Petteri Orpo, there was no political desire to abandon state gambling revenues. He emphasized that if the gambling monopoly were to vanish, it could result in a situation in which the revenues of the beneficiaries would be taken from the state budget (Valtanen, 2016).

The parent organization of the beneficiaries in the social and health fields, Suomen sosiaali ja terveystyö ry (SOSTE) argued against the merger in the initial phase of reporting (Jungman, Rosenberg-Ryhänen, & Kiukas, 2014). All operators had their own games and the only savings they could arrange after merging would be to reduce game supply “Then there would not be any benefits for the citizens, but rather the contrary,” the representatives of SOSTE commented (Jungman et al., 2014). This aspect is interesting because the SOSTE organizations—which all operate in the name of citizens’ health and social well-being—expressed the idea that a lesser gambling supply was a worse scenario from the citizens’ perspectives. This view can be seen as going against the public health approach of total consumption correlating with both availability and level of harm (Hansen & Rossow, 2012; Markham, Young, & Doran, 2014). It is as if the SOSTE organizations, in this particular statement, had forgotten about gambling having consequences and were only thinking of citizens as people wanting many game alternatives and gambling revenues for beneficiaries. This rationale was also entangled with the presupposition of the constant desire to gamble.

Other beneficiaries also expressed insecurity regarding the support to civil society in the case of the merger taking place. They were worried that other sectors would become beneficiaries of “their” money. For example, the beneficiaries of the revenues of the lottery provider Veikkaus demanded that they be heard and have access to the political process underpinning the merger (M. Nieminen & Niskakangas, 2014).

In comparison to the other gambling operators, the owner of Fintoto, Suomen Hippos, had a lot space in the media, especially during the beginning of the fusion discussion. Suomen Hippos did not want the fusion with RAY and Veikkaus (Arola, 2014). According to the representatives of Suomen Hippos, it was possible to make changes within the current system and making the decision in haste could cause severe damage. Suomen Hippos was worried about a reduction in money and the continuity of its activities (Hakola, 2015).

During the winter of late 2014 and the beginning of 2015, the merger process was not very visible in media reporting. In view of the reintroduction of the question in the media in the spring of 2015, it seems that a mainstreaming of views on the merger had been conducted during the winter. In March 2015, *HS* reported that all political parties unanimously stood behind the idea of merging the operators (Berg, 2015). The representatives of the Ministry of the Interior, Räsänen and Nerg, said that the merger was recommended because it had been prepared carefully by the workgroup and the merger had wide political support among all stakeholders and political parties (Berg, 2015; Raeste, 2015b).

Some of the stakeholders and actors had thus changed their mind during the period under study. For instance, in September 2015, the Secretary General of SOSTE commented: “We believe that one monopoly is more capable of responding to the [foreign] competition and in that way protecting the funding of public health care, sports, research, youth work and horse breeding” (Savolainen, 2015). Suomen Hippos decided that Fintoto would be part of the fusion (Pusa, 2016).

In conclusion, many actors that initially raised critical voices turned out to be supportive of the merger. Clearly, the three-operator system was not a policy problem for several key stakeholders at the beginning of the process; it had to be construed as such. The policy problem needed to be represented in a way that could be accepted by the key stakeholders who were most of all interested in the revenues. Once this was achieved, there were no obstacles to reaching a political consensus. To put it differently in the terminology of the WPR approach, the three-operator system became a problem that started to exist more and more “*in the real*” (cf. Bacchi, 2016, p. 33).

In the media texts, the idea of a political consensus was driven through and represented by the rather opaque concept of political will, signifying shared views between political parties and stakeholders. This element drove the storylines towards their supposed solution, which was the monopoly merger. This reflected the fact that not only did the Finnish political climate represent the Nordic consensus-driven model (cf. Lijphart, 2012; Post, Raile, & Raile, 2010), but that patterns of interrelationships between political and media systems also followed a Northern European or democratic corporatist model (Hallin & Mancini, 2004; H. Nieminen, 2010) in which power sharing and political consensus systems are typical features. From the context of the material in this analysis, the concept of a political will can be characterized as “a sufficient set of decision makers with a common understanding of a particular problem on the formal agenda which is committed to supporting a commonly perceived, potentially effective policy solution” (Post et al., 2010, p. 671). This notion served as an efficient enabler for the progress of the merger process.

The questioning of the fusion process and a discussion about other options for changing the gambling system appeared in the media material only after the political decision making had proceeded to a point of no return in the autumn of 2015. The main criticism concerned the fact that decision makers had emphasized the safeguarding of funding for beneficiaries and safeguarding the state monopoly system,

instead of discussing issues related to the prevention of gambling-related problems (Myllymaa, 2016; Pajula & Heiskanen, 2016; Toivonen, 2017).

For instance, in an editorial in *HS* in April 2016, researcher Antti Myllymaa of the University of Helsinki pointed out that the largest challenges were yet to come (Myllymaa, 2016). In an interview in the same daily, Myllymaa pointed out the hypocrisy involved in the harm argument only coming into the picture after the merger was a fact: “When the monopoly is justified in Finland, the question of distributing the money to public good is emphasized. Yet, if the Finnish gambling monopoly is justified to the EU . . . the prevention of gambling-related problems is mentioned” (Toivonen, 2017). Myllymaa also brought up the license system as a valid alternative to the monopoly system.

Mari Pajula, the development manager of the national gambling helpline, Peluuri, and PhD student Maria Heiskanen commented on the public discussion of the fusion process, especially the circumstance of it having emphasized securing gambling returns and improving the availability of games: “The returns yielded by the Finnish gambling system benefit many, and the beneficiaries are standing up for their economic interests. We need more courage and will to discuss the practical aims of prevention and reduction of harms” (Pajula & Heiskanen, 2016).

In Table 1, we have summarized the WPR storylines that led to the state monopoly merger: the main problem construct, the conditions and threats that they imply, and the solution (merger of the three operators).

Discussion

The policy documents and the media material unfold four stories of the policy problem representations and the presuppositions underpinning the great monopoly merger. In these stories, the three-operator system was construed as an urgent problem needing to be solved. The problem representations served important political functions: the protection of the monopoly system and the protection of the gambling revenues. The policy documents provided a perspective from within the constructs that drove the progress from the centre of the system. The necessity for change was construed as if it were determined by forces outside the control of the Finnish gambling operators or the state. The political function of this problem representation was to underline that the need for change was not influenced by national financial interests. What is lacking from the documents is a problematization of the basic presuppositions regarding the naturalness of the desire to gamble. The representation of desire to gamble as an inherent feature of human populations—which is common in the gambling legislations of many European countries (Swiss Institute of Comparative Law, 2006)—is particularly problematic because it is at odds with the aim of preventing and reducing gambling-related harms. Insofar as the desire to gamble is an invariable, gambling-related harms are seen as inevitable (Livingstone et al., 2018). The opportunity for a system change towards more centralized control of the market could have involved public health ambitions to increase prevention efforts

Table 1
The WPR Storylines That Orient the Arguments towards a Gambling Monopoly Merger

	The WPR Storyline	Main Problem Construct	Conditions and Threats	Solution
Policy documents and media material	1. Implosion An imploding system that does not comply with the EU legal framework	A likely internal competition between the existing operators risks the compliance of the system with EU law. “The system is not sustainable as it is.”	The (online) products of the three existing companies start to resemble each other. The noncompliance with EU law could—through a case trial in the court of justice—overrule the monopoly system.	One state-controlled monopoly
	2. Zeitgeist The synergy between technological advances and global market forces that has led to a massive transformation over which no one has control	Quick technological advances are reshaping the gambling business, the market, and consumer behaviour. “The forces that are threatening the system are massive and quick.”	There is lack of autonomy, control, and agency by the Finnish government in a global market world. Online gambling is difficult to control and the Finnish operators are unable to compete with the foreign operators.	
	3. Protection A system threatened by strong and uncontrollable outside forces that needs to be protected	Foreign online operators are pushing their products. Finnish operators are lagging behind in product development and are unable to channel the population’s desire to gamble. “The safe and good national gambling control must be safeguarded.”	Foreign [bad] online operators will start taking market shares from the Finnish [good] operators. The new monopoly can provide safer services and better tools for the management of gambling behaviour.	
Additional storylines found in the media material (not WPR)	4. Political will The initial stakeholder worries and critiques that shift in favour of the merger	In the beginning, all stakeholders did not agree with the idea of merging the gambling monopolies. “Not everybody directly understood the need for a consensus on this question.”	Beneficiaries: What will happen to gambling revenues for the common good? What will happen to Fintoto? A lack of consensus is portrayed as something bad.	One state-controlled monopoly

Note. EU = European Union; WPR = “What’s the problem represented to be?” approach.

or to restrict gambling supply (cf. Tammi, Castrén, & Lintonen, 2015). Instead, the worry of losing gambling revenues to foreign operators motivated the merger of the monopoly operators.

In comparison, the media construed the problems a bit differently. Their perspective was more from the outside and a larger repertoire of voices was heard on the matter. The material was larger and spanned a longer time frame. To begin with, some stakeholders—especially those representing beneficiaries in the civil society sector—raised worries about the merger and expressed criticisms of it, but they were in the end presented as mainstreamed and synchronized in favour of the merger. It was as if the problem representation in the policy documents spread and convinced all interested parties that everyone would gain from the systemic change. Finally, after the merger was fact, critique of the policy problem representation—including the EU framing and the argument of preventing outside competition—was presented together with the process in itself.

The presuppositions and assumptions made functioned to guarantee that the monopoly system would serve the nation and its interests, as well as handle all threats and challenges, while sticking to the regulatory framework of the EU. This was a unique development and a unique policy process in Europe. The gambling policy of Norway, the only other European country to safeguard its gambling monopoly system, only highlights the exceptionality of the Finnish case. In Norway, public health concerns have had a real impact on gambling policy and significant restrictions on gambling supply have been introduced (Rossow & Hansen, 2016). Jensen (2017) offers a convincing explanation for this: In Norway, the state gets no tax income from gambling and has thus had less interest in gambling revenues than in Finland. Considering the high level of gambling consumption in Finland and the great dependency of civil society organizations and research on gambling revenues, the justifications for a further centralized monopoly model needs to be critically scrutinized. This study has been a first attempt in this direction.

References

- Administration Committee of the Parliament. (2016). *Hallituksen esitys eduskunnalle laeiksi arpajaislain ja eräiden siihen liittyvien lakien muuttamisesta* [Government proposal to the Parliament for amending the Lotteries Act and some related laws]. Administration Committee of the Parliament report HaVM 25/2016 vp. Retrieved from https://www.eduskunta.fi/FI/vaski/Mietinto/Sivut/HaVM_25+2016.aspx
- Arola, H. (2014, December 9). Hippos kavahtaa yhdistymistä Ray:n ja Veikkauksen kanssa. [Hippopotamus is startled by the merger with RAY and Veikkaus] *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>
- Bacchi, C. (2009). *Analysing policy: What's the problem represented to be?* Frenchs Forest, NSW, Australia: Pearson Education.

Bacchi, C. (2015). Problematizations in alcohol policy: WHO's "alcohol problems," *Contemporary Drug Problems*, 42, 130–147.

Bacchi, C. (2016). Problematizations in health policy: Questioning how "problems" are constituted in policies. *SAGE Open*, 6, 1–16. Doi:10.1177/2158244016653986

Berg, A. (2015, March 14). Puolueet yksimielisiä rahapelien yhdistämisestä [Political parties unanimous in the gambling merger]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Borch, A. (2015). *The monopolisation of the Norwegian slot machine market* (Projektnotat nr. 9-2015). Oslo, Norway: National Institute for Consumer Research.

Burchell, G. (1991). Peculiar interests: Civil society and governing 'the system of natural liberty.' In G. Burchell, C. Gordon, & P. Miller (Eds.), *The Foucault effect: Studies in governmentality* (pp. 119–150). Chicago, IL: The University of Chicago Press.

Carlgren, F. (2018). *Statsbudgetens inkomster* [State budget's revenue]. Retrieved from <https://www.ekonomifakta.se/Fakta/Offentlig-ekonomi/Statsbudget/Statsbudgetens-inkomster/>

Cottle, S. (2006). Mediatized rituals: Beyond manufacturing consent. *Media, Culture & Society*, 28, 411–432.

Doukas, D., & Anderson, J. (2008). Commercial gambling without frontiers: When the ECJ throws, the dice is loaded. *Yearbook of European Law*, 27, 237–276.

Finnish Government. (2016). *Hallituksen esitys eduskunnalle laeiksi arpajaislain ja eräiden siihen liittyvien lakien muuttamisesta* [Government proposal to the Parliament for amending the Lotteries Act and some related laws]. Government proposal HE 132/2016 vp. Retrieved from https://www.eduskunta.fi/FI/vaski/HallituksenEsitys/Documents/HE_132+2016.pdf

Fischer, F. (2012). *Reframing public policy. Discursive politics and deliberative practices*. Oxford, United Kingdom: Oxford University Press.

Fischer, F., Miller, G. J., & Sidney, M. S. (Eds.). (2007). *Handbook of public policy analysis: Theory, politics, and methods*. Boca Raton, FL: CRC Press.

Hakola, T. (2015, April 29). Rahapeliuudistus: Hevosala pelkää jäävänsä isojen jalkoihin [The gambling reform: The horse sector is afraid of lagging behind the big companies]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Hallin, D. C., & Mancini, P. (2004). *Comparing media systems: Three models of media and politics*. Cambridge, United Kingdom: Cambridge University Press.

Hansen, M., & Rossow, I. (2012). Does a reduction in the overall amount of gambling imply a reduction at all levels of gambling? *Addiction Research and Theory*, 20, 145–152.

Heiskala, R. (2000). Kulttuurinen konstruktionismi ja yhteiskunnalliset pakot [Cultural constructionism and social compulsions]. *Sosiologia*, 38, 35–42.

Hoppe, R. (2013). *The governance of problems: Puzzling, powering and participation*. Bristol, United Kingdom: Policy Press.

Järvinen-Tassopoulos, J. (2012). Gambling, policy issues and the public good: The case of Finland. In M. Hellman, G. Roos, & J. von Wright (Eds.), *A welfare policy patchwork: Negotiating the public good in times of transition* (pp. 83–97). Helsinki, Finland: Nordic Centre for Welfare and Social Issues.

Jensen, C. (2017). Money over misery: Restrictive gambling legislation in an era of liberalization. *Journal of European Public Policy*, 24, 119–134.

Jungman, T., Rosenberg-Ryhänen, L., & Kiukas, V. (2014, September 4). Peliyhteisöjen yhdistäminen ei toisi lisäarvoa [A merger of the gambling communities would not bring extra profit]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Junkkari, M., & Nieminen, M. (2014, December 2). Hallitus valmistelee Veikkauksen, RAY:n ja Fintoton yhdistämistä [The government prepares the merger of Veikkaus, RAY and Fintoto]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Laffey, D., Della Sala, V., & Laffey, K. (2016). Patriot games: The regulation of online gambling in the European Union. *Journal of European Public Policy*, 23, 1425–1441.

Lijphart, A. (2012). *Patterns of democracy: Government forms and performance in thirty-six countries* (2nd ed.). New Haven, CT: Yale University Press.

Livingstone, C., Adams, P., Cassidy, R., Markham, F., Reith, G., Rintoul, A., ... Young, M. (2018). On gambling research, social science and the consequences of commercial gambling. *International Gambling Studies*, 18, 56–68.

Lotteriinspektionen. (2016). *The development of the gambling market in Sweden and internationally 2016*. Retrieved from <https://www.lotteriinspektionen.se/globalassets/dokument/informationsdokument/tryckta-publikationer/the-development-of-the-gambling-market-in-sweden-and-internationally-2016.pdf>

Markham, F., Young, M., & Doran, B. (2014). Gambling expenditure predicts harm: Evidence from a venue-level study. *Addiction*, 109, 1509–1516.

- Matilainen, R. (2017). *Production and consumption of recreational gambling in twentieth-century Finland* (Doctoral dissertation). Retrieved from Helda: <http://hdl.handle.net/10138/226022>
- Ministry of the Interior. (2015). *Selvitys Suomen rahapelijärjestelmän vaihtoehtoista ratkaisumalleista* (Sisäministeriön julkaisu 12/2015) [A report on the alternative models for gambling system]. Helsinki, Finland: Author.
- Myllymaa, A. (2016, April 11). Rahapelipolitiikan murros on vasta edessä [The turning-point of gambling policy is yet to come]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>
- Myllymaa, A. (2017). *The political economy of online gambling in the European Union* (Doctoral dissertation). Retrieved from Helda: <http://urn.fi/URN:ISBN:978-951-51-2987-1>
- Nieminen, H. (2010). The unravelling Finnish media policy consensus? In D. Levy & R. Nielsen (Eds.), *The changing business of journalism and its implications for democracy* (pp. 55–67). Oxford, United Kingdom: University of Oxford, Reuters Institute for the Study of Journalism, Department of Politics and International Relations.
- Nieminen, M. (2014, December 2). Räsänen rahapelijärjestelmästä: On oltava ajan hermolla [Räsänen on the gambling system: We need to be up to date]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>
- Nieminen, M., & Niskakangas, T. (2014, December 2). Järjestöt kritisoivat pelimonopoliin yhdistämissuunnitelmia [The organizations criticize the fusion plans of the gambling monopolies]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>
- Nieminen, M., & Pusa, A. (2014, December 3). Uusi pelijätti hirvittää rahansaajia [The new gambling giant frightens beneficiaries]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>
- O'Malley P. & Valverde, M. (2004). Pleasure, freedom and drugs: The uses of 'pleasure' in liberal governance of drug and alcohol consumption. *Sociology*, 38, 25–42.
- Pajula, M., & Heiskanen, M. (2016, June 25). Rahapelihaittojen torjumisen on ohjattava peliyhtiöiden yhdistymistä [The prevention of gambling-related harms must guide the merger of gambling operators]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>
- Palojärvi, E. (2015, February 12). SM:n kansliapäällikkö Nerg yhdistäisi Veikkauksen, RAY:n ja Fintoton [The Ministry of Interior's Chief Secretary Nerg would merge Veikkaus, RAY and Fintoto]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Post, L. A., Raile, A. N. W., & Raile, E. D. (2010). Defining political will. *Politics & Policy*, 38, 653–676.

Pusa, A. (2016, March 17). Hevospelit siirtyvät uuteen rahapeliyhtiöön—hevosala odottaa lisää tuottoja [Betting on horses included in the new company—The equine industry expects more revenue]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Raeste, J. P. (2015a, March 24). Rahapeliyhtiöiden yhdistäminen nytkähti eteenpäin [The merger of the gambling operators is progressing]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Raeste, J. P. (2015b, March 24). Räsänen: Rahapeliyhtiöt tulisi saada yhteen vuoden 2017 alusta [Gambling operators should merge in the beginning of the year 2017]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Rahkonen, J. (2007). Public opinion, journalism and the question of Finland's membership of NATO. *Nordicom Review*, 28, 81–92.

Rossow, I., & Hansen, M. (2016). Gambling and gambling policy in Norway—An exceptional case. *Addiction*, 111, 593–598.

Roukka, T. (2016). *Suomen rahapelimarkkinat ja kansantalous* [Gambling and the Finnish economy] (Research report No. 126). Turku, Finland: University of Turku.

Savolainen, J. (2015, September 18). Veikkaus, RAY ja Fintoto sulautuvat yhteen [Veikkaus, RAY and Fintoto will merge]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi>

Social Affairs and Health Committee of the Parliament. (2016). *Hallituksen esitys eduskunnalle laeiksi arpajaislain ja eräiden siihen liittyvien lakien muuttamisesta* [Government proposal to the Parliament for amending the Lotteries Act and some related laws]. Social Affairs and Health Committee of the Parliament statement StVL 9/2016 vp. Retrieved from https://www.eduskunta.fi/FI/vaski/Lausunto/Documents/StVL_9+2016.pdf

Swiss Institute of Comparative Law. (2006). *Study of gambling services in the internal market of the European Union*. Retrieved from <http://ec.europa.eu/DocsRoom/documents/9725>

Tammi, T. (2008). Monopoly on gambling, monopoly on problems: Why did gambling problems become a matter of social concern in Finland? *Nordisk Alkohol & Narkotikatidskrift*, 25, 299–310.

Tammi, T., Castrén, S., & Lintonen, T. (2015). Gambling in Finland: Problem gambling in the context of a national monopoly in the European Union. *Addiction*, 110, 746–750.

Toivonen, J. (2017, January 2). Veikkauksen monopoliasemaa perustellaan tekopyhästi, kritisoi rahapelitutkija [The monopoly of Veikkaus is justified hypocritically, criticize the gambling researcher]. *Yle Uutiset*. Retrieved from <https://yle.fi/uutiset>

Uusi Veikkaus on aloittanut toimintansa [The New Veikkaus has opened]. (2017, January 1). *Karjalainen*. Retrieved from <https://www.karjalainen.fi>

Valtanen, T. (2016, February 4). Rahapelimonopolin purkaminen lisäisi valtion menopaineita—hintalappu 1,2 mrd. Euroa [Dissolution of gambling monopoly would increase the expenditure of state—The price tag is 1,2 billion euros]. *Yle Uutiset*. Retrieved from <https://yle.fi/uutiset>

Van den Bogaert, S., & Cuyvers, A. (2011). “Money for nothing”: The case law of the EU Court of Justice on the regulation of gambling. *Common Market Law Review*, 48, 1175–1213.

The world’s biggest gamblers. (2017, February 9). *The Economist*. Retrieved from <https://www.economist.com>

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first person account

The story of a lottery addict in India: Who is responsible and what are its policy implications?

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Introduction

This is Muthu's story. He is a gambler who lives in Kerala, India. Here I narrate this story as told by his wife, and also highlight the issue of "responsible gambling" as seen from the lottery seller's perspective. The narratives and advertisement excerpts are translated from Malayalam, the local language spoken in Kerala. Using my professional expertise a practitioner, I describe the landscape of gambling in both Kerala specifically and India generally, albeit in both cases briefly, and suggest how the country should rethink its gambling policy to limit gambling-related harm. This presentation is unique because there is little to no literature on gambling in India. Although the "case" and the ensuing policy discussion are limited to India, the issues being highlighted and the solutions being suggested will resonate with all those working throughout the world in the field of gambling. More than anything, this brief paper is an attempt to introduce the Western reader to the world of gambling in India, and is a call for more cross-fertilization of ideas, research and policy.

Vijayalakshmi's story (pseudonym; gambler's wife)

"Muthu isn't the man I married four years ago. He never had any 'bad habits' back then. It started with alcohol; he rarely gambled in the early days of our marriage. Two years ago, he started playing the lottery more often. Initially he would just buy a ticket once a week or so on a Saturday. Then the frequency increased. Nobody believed me when I told them it was becoming a problem. They kept telling me it's only lottery, how bad can that be? He started buying a lottery ticket almost every day, on his way back from work [1 ticket costs about 30 rupees, which is less than half one US dollar]. Over the past one year or so, he has been spending all his wages on the lottery [about 700 rupees a day = 10 dollars US]. Some days when he doesn't get work, he has no money but he still wants to gamble so he borrows from me or his friends. As a result, he is now in a lot of debt. When I ask him to stop, he says he will win big one day and then he will stop. I don't know what else to do. He is so irresponsible with money and his life. Our two year old son and I are not his priority anymore. Out of desperation I have even gone and spoken to the lottery agent who

sells him the tickets, asking him not to sell to him—that didn't work. So I tried asking him if he could not sell to my husband when he is drunk or at least not to sell him more than one ticket a day. Sadly the lottery agent didn't agree. He said he is only doing his job. I want my old Muthu back. Can you help?"

Muthu's story (pseudonym)

Muthu is a 28 year old married man. He lives in a one bedroom, rented house with his wife, Vijayalakshmi, and their two year old son. Muthu is a daily wages labourer and does not hold a regular job. He lives in Kochi, Kerala, India. He has no previous psychiatric history, and had an uneventful childhood and early adult life. He was premorbidly well-adjusted. He drinks approximately eight units alcohol (equal to 10 ml or 8 grams of pure alcohol) on most days. He started gambling two years ago. He only plays the lottery, run exclusively by the Kerala State government. Initially he used to buy 1 lottery ticket per week but gradually increased this rate to 20 to 30 tickets a day. He has not won any prizes yet but is certain that he is due to enjoy a big win soon. He spends more on the lottery than he earns and hence is in debt. He gambles more when under the influence of alcohol. Apart from alcohol and gambling he has no other addictions or other psychiatric comorbidity.

Under duress from his wife, he came to see me in my outpatient gambling clinic. He attended two sessions of cognitive behaviour therapy before dropping out. Muthu enjoys only limited insight into his gambling disorder.

Muthu's lottery seller

Ravi (pseudonym) runs his lottery sales agency at the local town centre. I spoke to him briefly, and asked about Muthu and about his own (the lottery seller's) sense of responsibility in selling lottery tickets to Muthu. He said, under assurance of anonymity, "Yes, I know him. He's a good customer for me because he spends a lot of money in my shop every day. What responsibility? It's not my responsibility. It's he who should be responsible with his money and his life. What can I do? My responsibility is to my wife and kids. If I don't sell tickets I can't put food on my table, so that's what I do. Go ask the government about responsibility, they are the ones who make a lot of money out of all this. I only get a small commission. What can I do? I am not tricking anyone, neither am I forcing anyone to come into my shop and buy tickets." This interview then had to be terminated as he turned hostile.

Kerala government's lottery advertisement

The Kerala State government extensively advertises its State lottery in print and broadcast media. The narration of a television advertisement is approximately as follows. "The setting is a local tea shop. One man buys a lottery ticket from a retail seller just outside the shop and walks in. He asks another man, who is having his tea, if he has bought the lottery ticket. When he says he doesn't want to waste money, several others in the tea shop are seen convincing him about how lucrative the prize money is,

how it helps employ poor people, how it goes into building bridges, roads and airports, and fund healthcare for the poor. Finally he is ‘convinced’ and he too buys a ticket.”

The tag line of the State government’s radio and television lottery advert is, “Kerala State Lottery—trustworthy, democratic and transparent.”

Gambling and gambling legislation in Kerala, India

India, a South Asian country, is the world’s second most populous after China, and the world’s seventh largest by area. It is also the world’s largest democracy. Kerala is located at the southwestern tip of India and is one of India’s 29 States. Kerala had a population of over 33 million in 2011 (*Population Census 2011*) and as such contributed 2.75% of India’s population. Kerala boasts the highest sex ratio (females : males = 1.084) in India, the highest literacy rate (100%), and the highest life expectancy (74 years).

Lotteries are legal in 13 of the 29 Indian States (including Kerala) and 5 Union territories; horse racing in 6 States, and casinos only in 2, specifically Goa and Sikkim. Lotteries and certain card games are legal in Kerala. All lotteries in Kerala are run by the State government. Online lotteries are banned in Kerala.

The Public Gambling Act (1867) is the sole piece of legislation that regulates gambling in Kerala and India. This was brought in by the British during their rule of India to exercise some control on gambling in India. The Centre has devolved powers to individual States to make necessary amendments to the 1867 Act, as they deem fit, to regulate or deregulate gambling within their own State boundaries. This act makes a distinction between games (1) of pure chance, and (2) a combination of chance and skill, making only the latter legal. Although lotteries are games of pure chance, certain States in India, of which Kerala is one, have made amendments to the Central Act, and in doing so made lotteries legal within their State boundaries. Sports betting, though it could be justifiably classified as combination of skill and chance, is deemed illegal throughout India, except in the State of Sikkim where sports betting via the internet has been illegal since 2010. Similarly, individual States have the capacity to make amendments in the law to make them legal within their jurisdictions, if in the future they so wish. The Act is ambiguous in certain aspects—for example, it considers betting on horse racing legal (although only certain States allow it) as it involves skill and chance, but sports betting is considered illegal although it too could be considered to involve a combination of game and chance. Studies of school and college students have found that lotteries are popular types of gambling activity in Kerala (George et al., 2016; Jaisoorya et al., 2016). Although illegal betting is thought to be extremely common, especially betting on sports, it is impossible to determine its scale.

The State of Kerala runs seven weekly lotteries and six bumper draws. Between 4 crore (40 million) and 4.5 crore lottery tickets are sold every week. For example, 40,513,630 lottery tickets were sold during the week of 8–14 August 2016 (K. M. Abraham, personal communication 9-Aug-2018). There are 34,417 authorized

lottery agents and one determined lakh retailers. Karunya lottery (the word *karunya* in Malayalam means *kindness*) is one type of State lottery. It was set up by the State government in 2011 with a view to using the revenue generated for charitable purposes. The State lottery scheme is estimated to have generated revenue for the State in the region of 8700 crore rupees (about 1.1 billion US dollars) in 2017–18. From these figures it is evident that the State lottery is a major source of revenue for the government and this economic “angle” cannot be underestimated in any policy debate.

Policy implications: Government’s responsibility?

I do not wish to start here a debate about the concept of “responsible gambling” (Chóliz, 2018; Hing, 2018) but merely wish to highlight some of the responsibilities of the Kerala State government in this area. The government needs to acknowledge gambling as a public health issue, one with potential for addiction, and consequent harm to the gambler, his or her family, and the wider society (Roaf, 2015).

As the State is the only agency that runs lotteries in Kerala, it only seems reasonable to argue that it has a responsibility to put in place measures to reduce gambling-related harm.

How should India rethink its gambling policy?

1. It is the Public Gambling Act of 1867 that still regulates gambling in India and the Centre has devolved exclusive powers to individual States to deem what types of gambling are legal or illegal. This legislation is archaic and needs revision, primarily because the gambling landscape in India has changed immensely since 1867. The law could be made fit specific purpose. A wider debate on legalizing gambling in India needs to take place.
2. Gambling’s harm to the individual, family and society are well established (Wardle, Reith, Best, McDaid, & Platt, 2018). The government needs to take a public health approach to gambling and gambling-related harm (Roaf, 2015). A three-level approach for the prevention of gambling-related problems, consisting of primary, secondary and tertiary levels of prevention ought to be considered. Primary prevention measures focus on social, psychological and legal strategies. Examples of such strategies include awareness-raising campaigns (about various aspects of gambling, its potential for harm, signs and symptoms, how to seek help, etc.), the banning of gambling advertisements and promotions, and limiting the availability of gambling opportunities. Secondary prevention measures aim at early diagnosis and treatment of at-risk and problem gamblers. Of various such interventions, the ones of interest to the case discussed here include providing training to staff at gambling venues (casinos and lottery shops) to enable them to recognise problem gamblers. Similarly, staff at gambling venues such as lottery shops need to be trained in the basics of “responsible gambling”—i.e., not to sell tickets to gambling addicts or those persons under the influence of substances, and work with families in the area of self-exclusion (to enable them to

recognize problem gamblers). Tertiary prevention strategies would target individuals experiencing harm from their own gambling or through their loved ones' gambling. The approach would include specialist and intense psychological and psychiatric interventions for problem gamblers and support for their families. The government also maintains a duty to offer or at least advertise appropriate treatment programs, both psychological and pharmacological, for problematic gamblers and their loved ones.

Another key issue to address is funding of gambling treatment services—i.e., who will fund this? To be ethically sound, the provision of gambling treatment should be independent of the gambling industry (Walker & George, 2013). However this may not be realistic given the scarce resources. It might be more pragmatic to implement a combined funding stream involving both the government and the gambling industry. A strict ethical code of practice for the industry's involvement would need to be imposed and monitored, to allay any ethical concerns.

It is also worth noting that more research needs to be done in the field of gambling in India as little has been done to date. Only limited data on the prevalence of gambling and gambling-related problems in India exists, or data concerning its prevalence in specific populations, let alone its correlates and comorbidity, course and outcome, and treatment effectiveness. Answers to these questions are needed to inform meaningful and comprehensive policy development.

Developing a national gambling strategy and appointing an independent body to oversee it are key to minimising gambling-related harm and to promote responsible gambling. There are examples of good practice from the West—for example, the Responsible Gambling Strategy Board in Britain (RGSB), which could be replicated in India. Such an independent body could include experts from the fields of gambling research, treatment, policy and academia. It could advise the government on the research, education and treatment aspects of gambling; and determine what research, education and treatment is required to reduce harm from gambling. It should also consider all forms of gambling and set the agenda for gambling operators, regulators, commissioning organisations, government, trade bodies, treatment providers and several other public agencies. The participation of the gambling industry should come with certain clear caveats to prevent the promotion and realization of specific and unacceptable self-interests.

The public health impact on gambling in Kerala and India needs to be seen against the backdrop of a move to legalize sports betting in India. The Law Commission of India was asked, two years ago, by the government to examine the best way to deal with India's illegal gambling. In response, the Law Commission of India in its 2018 report (2018), claimed that “since it is not possible to prevent these activities completely, effectively regulating them remains the only viable option.”

Theory to practice: challenges in implementation

Although the above-mentioned theoretical measures appear sound in theory and are unlikely to be disputed by most persons, I acknowledge nevertheless that the real

challenge ahead will lie in translating these ideas into practice. Resistance will likely take place from lottery sellers and politicians, as implementing tighter controls and restrictions can eat their revenues. It is evident that both lottery sellers and politicians hold a conflict of interest here. Acknowledging this fact, ways and means still exist to achieve responsible gambling policies and practices. It could, for example, be made mandatory for lottery sellers to obtain their annual State Government license that they need to engage in stricter responsible gambling practices, and that they must implement them and provide evidence of having done so. As far as politicians are concerned, providing proof of the negative consequences of problem gambling could make them take stronger actions and agree to a change in policy. And currently there is only scant evidence from India to present a case for more responsible gambling policies; hence, I call for more local (India-focused) research into gambling-related harm with a view to informing required and successful social policy change.

Conclusion

In summary, lottery is a popular form of gambling in Kerala. As is evident from this case report from this case report, for certain gamblers lotteries can be addictive. Yet its public health risk is not acknowledged by the government who exclusively run the lottery in the State of Kerala. I argue the case for more work to be done to raise the profile of gambling as an important public health issue, and to make it widely acknowledged as a behaviour with addiction potential. In this regard, the government holds crucial responsibilities to minimize gambling-related harm. I have made suggestions to make these shifts take place.

References

- Advisory Board for Safer Gambling (n.d.). Birmingham, UK: Author. Retrieved from: <https://www.rgsb.org.uk/Home.aspx>
- Chóliz, M. (2018). Ethical gambling: A necessary new point of view of gambling in public health policies. *Frontiers in Public Health*, 6, 12–23. doi:10.3389/fpubh.2018.00012. Retrieved from: https://www.researchgate.net/publication/322831236_Ethical_Gambling_A_Necessary_New_Point_of_View_of_Gambling_in_Public_Health_Policies
- George, S., Jaisoorya, T. S., Nair, S., Rani, A., Menon, P., Madhavan, R., ... & Petry, N. M. (2016). A cross-sectional study of problem gambling and its correlates among college students in South India. *British Journal of Psychiatry Open*, 2, 199–203. doi:10.1192/bjpo.bp.115.002519. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4995164>
- Hing, N. (2018). The evolution of responsible gambling policy and practice: Insights for Asia from Australia. *Asian Journal of Gambling Issues and Public Health*, 1, 19–33. doi:10.1007/BF03342116. Retrieved from: <https://link.springer.com/content/pdf/10.1007/BF03342116.pdf>

Jaisoorya, T. S., Beena, K. V., Beena, M., Ellangovan, K., Thennarassu, K., Bowden-Jones, H., ... & George, S. (2016). Do high school students in India gamble? A study of problem gambling and its correlates. *Journal of Gambling Studies*, 33, 449–460. doi:10.1007/s10899-016-9651-5

Law Commission of India (2018) *Legal framework: Gambling and sports betting including in cricket in India*. New Delhi, India: Government of India. Report number 276. Retrieved from: <http://lawcommissionofindia.nic.in/reports/Report276.pdf>

Population Census 2011 (2015). Retrieved from: <https://www.census2011.co.in>

The Public Gambling Act, 1867. Retrieved from: <https://indiankanoon.org/doc/1824663/>

Roaf, E. (2015). Gambling and public health. In Bowden-Jones, H., & George, S. (eds.), *A clinician's guide to working with problem gamblers* (pp. 15–27). London, UK: Routledge.

Walker, T., & George, S. (2013). Funding treatment for gambling addiction in Great Britain: Ethical issues. *British Journal of Hospital Medicine*, 74, 246–47. doi:10.12968/hmed.2013.74.5.246

Wardle H., Reith G., Best D., McDaid D., & Platt S. (2018). *Measuring gambling-related harms: A framework for action*. N.p.: Gambling Commission. Retrieved from: <https://www.gamblingcommission.gov.uk/PDF/Measuring-gambling-related-harms.pdf>

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