

Mood, motives, and money: An examination of factors that differentiate online and non-online young adult gamblers

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(Received: January 22, 2015; revised manuscript received: November 12, 2015; accepted: December 25, 2015)

Background and aims: To date, there is a lack of research on psychological factors associated with young adult online gambling. The current study examined differences between young adult online and non-online gamblers, using information gathered at baseline and over 30 days during which participants reported on their moods, gambling behaviors, and reasons for initiating and discontinuing gambling. *Methods:* Participants were 108 young adult regular gamblers (i.e., gambling four or more times in the past month) who participated in a 30-day daily diary study. *Results:* Male gender, baseline coping motives for gambling and negative affect averaged across the 30 days emerged as significant correlates of online gambling, over and above other background variables. Online gamblers also scored higher on a baseline measure of pathological gambling. Over the 30 days of self-monitoring, online gamblers spent more time gambling, and won more money gambling, whereas non-online gamblers consumed more alcohol while gambling. Online gambling was more often initiated to make money, because of boredom and to demonstrate skills, whereas non-online gambling was more often initiated for social reasons and for excitement. Online gambling was more often discontinued because of boredom, fatigue or distress, whereas non-online gambling was discontinued because friends stopped gambling or mood was improved. *Discussion and conclusions:* This study provides preliminary evidence that coping strategies may be particularly important to reduce risks for online gamblers, whereas strategies for non-online gamblers should focus on the social aspects of gambling.

Keywords: gambling, online gambling, motives, mood, young adults

INTRODUCTION

Online gambling is relatively new but is increasingly being recognized as a legitimate form of gambling that is particularly appealing to younger gamblers, who are comfortable with online technologies and accustomed to having unlimited access to activities without leaving their homes (Lenhart, Purcell, Smith, & Zickuhr, 2010). Despite the appeal of online gambling, there are also several drawbacks, including its easy and continuous accessibility and, where sites are not regulated, a lack of monitoring and little protection for individual gamblers (Griffiths & Parke, 2002). Although rates of online gambling are low relative to other forms of gambling (Kairouz, Paradis, & Nadeau, 2012; Wiebe, Mun, & Kauffman, 2006) they are highest among young adults (Griffiths, Wardle, Orford, Sproston, & Erens, 2009; Petry & Weinstock, 2007; Wiebe et al., 2006) who often engage in high frequency online gambling, and spend more time and money in a typical month compared to gamblers involved in other types of gambling (Griffiths et al., 2009; Wiebe et al., 2006). Previous researchers have also found that online gamblers are more likely than non-online gamblers to be involved in several forms of gambling (Shead, Derevensky, Fong, & Gupta, 2012; Wood & Williams, 2009, 2011) and are more likely to

meet criteria for problem and pathological gambling (Griffiths et al., 2009; Ladd & Petry, 2002).

To date, most of the research on online gamblers has focused on identifying sociodemographic and gambling-related characteristics that differentiate online from non-online gamblers, including younger age and male gender (Griffiths & Barnes, 2008; Griffiths et al., 2009; Kairouz et al., 2012). To date, we do not yet have a clear understanding of the affective and motivational factors that differentiate online gamblers from those who do not gamble online. Understanding these factors is essential for identifying targets for intervention and determining the specific treatment needs of gamblers who engage in online vs. other types of gambling.

Mood and online gambling

Current theoretical models propose that pathological gamblers can be categorized into subtypes, with differences

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based on both predisposing characteristics (e.g., family history, early adverse experiences) and affect-related reasons for gambling, including gambling to increase subjective excitement or arousal and to escape negative affect (Blaszczynski & Nower, 2002; Sharpe, 2004; Stewart, Zack, Collins, & Klein, 2008; Wulfert, Roland, Hartley, Wang, & Franco, 2005). Empirically, there is a large body of research indicating that gambling is used to facilitate or enhance positive mood in particular. Gambling has been linked with increases in both subjective and physiological arousal (Moodie & Finnigan, 2005; Sharpe, 2004; Wulfert et al., 2005) and experimental studies using mood induction procedures have found significant associations between induced arousal and gambling behaviors (Rockloff, Signal, & Dyer, 2007).

In a daily diary study using the same sample as the current study, we found that young adults who gambled to enhance positive moods spent more time gambling and consumed more alcohol while gambling when their moods were more positive (Goldstein, Stewart, Hoaken, & Flett, 2014), but we did not examine online gambling in particular and it is not yet known whether online gambling retains these mood enhancement properties. In fact, previous researchers have identified a lack of realism and asociality as barriers to gambling online (McCormack & Griffiths, 2012), suggesting that online gambling may lack the excitement of other gambling contexts (e.g., casinos). In one study, researchers retrospectively examined the relationship between mood and problem gambling severity among young adult online gamblers and found that general negative mood and negative mood after gambling were associated with greater problem gambling severity (Matthews, Farnsworth, & Griffiths, 2009). Wood, Griffiths, and Parke (2007) examined predictors of problem gambling and reasons for gambling in a sample of online poker players and found that negative emotions were associated with gambling problems and that gambling to escape problems differentiated probable pathological gamblers from social gamblers and from those who were experiencing some gambling problems (but did not meet criteria for probable pathological gamblers).

Motivational models of gambling

Motivational models of gambling highlight affect regulation as a primary motive for initiating gambling behavior (Stewart & Zack, 2008; Stewart et al., 2008) and mood regulation has emerged as an important motive for online gambling (Lloyd et al., 2010). In contrast, Hopley and Nicki (2010) asked online poker players to rank a list of gambling motives and found that gambling to win money was the most frequently reported motive for gambling, whereas mood-related reasons for gambling ranked much lower on the list. However, the authors note that this may partly reflect the nature of their sample, which consisted of many 'successful' online gamblers.

Interestingly, we were able to identify only one previous study that examined motives for discontinuing gambling. Understanding what prompts the end of a gambling episode has important implications for reducing risks associated with continued or sustained gambling, particularly for

online gambling, which is readily available at all hours. Using a retrospective qualitative investigation, Wohl et al. (2008) identified several reasons for cessation of gambling episodes among undergraduate students, including monitoring of wins vs. losses; boredom, fatigue, and loss of interest; guilty feelings; and reaching pre-set limits for spending money. Problem gambling groups (i.e., low vs. moderate vs. high risk pathological gamblers) differed in their endorsement of specific cessation reasons. For example, those with the highest scores on measures of gambling pathology were more likely to stop playing when they ran out of money, had other commitments or something better to do, or because of negative affect (i.e., feelings of guilt). Those with lower scores on measures of pathological gambling were most likely to report stopping due to meeting specified time limits for gambling (Wohl et al., 2008). Although this study provides important information regarding the types of cessation motives reported by gamblers, it is not yet known whether the reasons for discontinuing gambling differ for online vs. non-online gamblers.

Objectives and hypotheses

Taken together, the current literature is somewhat limited in its ability to help us understand the ways in which mood and motives differentiate online from non-online gamblers. It is not clear whether young adult online gamblers are simply a subset of regular gamblers who engage in just another form of gambling or are gamblers who have different motives for gambling. In addition, it is not yet known whether the reasons for initiating and then discontinuing gambling are the same for online and non-online gambling events. The purpose of the current study is to further our understanding of young adult online gambling by examining the relationships between mood, motives and online gambling using innovative methods that capture mood and gambling in real time. We anticipated that online gamblers would be more likely to be male, would have higher scores on measures of problem gambling, and would gamble for longer periods and spend more money on gambling. We also anticipated that online gamblers would have higher scores on coping motives, but not enhancement motives for gambling, and higher negative, but not positive, affect. Finally, we anticipated that online gambling events would be initiated in response to negative moods and then discontinued when moods had improved. Since this was the first study to look at specific motives to initiate and discontinue online gambling, all other analyses in this area were exploratory.

METHODS

Participants

Participants were 108 young adult regular gamblers (i.e., four or more times in the past month) who participated in a 30-day daily diary study at two Canadian universities. All participants were between 19 and 24 years of age (M age = 21.67, SD = 1.63). The large majority of the sample was male (81.5%). Almost half of the sample was Caucasian (44.4%); 21.3% identified as South or Southeast

Asian, 15.7% identified as Asian, 3.7% identified as African/Caribbean Canadian, and 14% identified as “other” or endorsed multiple categories. One person did not report their ethnicity. Most of the participants were current full-time (69%) or part-time (11%) students.

Procedures

Participants were recruited through newspaper ads, flyers and community and social networking websites in two large Canadian cities. Prospective participants were screened for eligibility via telephone. Only individuals who were: 1) 19 to 24 years old; 2) had gambled at least four times in the last 30 days (not including lottery tickets); 3) had never received treatment for a gambling problem; and 4) did not currently have a diagnosis of schizophrenia, bipolar disorder or psychosis; were eligible to participate in this study. Participants were provided written informed consent, completed baseline measures in the lab, and then received training in the use of Palm Pilots[®] to complete the daily assessments. The daily assessments were completed three times per day at random intervals in the morning (10:00 to 11:30), afternoon (15:00 to 16:30) and evening (20:00 to 21:30) and participants were compensated for their participation with online gift cards.

Measures

Baseline measures

Background variables. Correlates of young adult gambling were assessed, including gender, substance use, education level, marital status, annual family income, and disposable income (Winters, Bengston, Door, & Stinchfield, 1998).

Gambling problems. Participants completed the Canadian Problem Gambling Index (CPGI; Ferris & Wynne, 2001) interview. The CPGI was designed to assess problem gambling and includes nine items assessing gambling behaviors (4 items) and gambling consequences (5 items) that together comprise the Problem Gambling Severity Index (PGSI; McCready & Adlaf, 2006). Participants indicate the frequency with which they have engaged in problem gambling behaviors (e.g., bet more than could afford to lose, gone back another day to win lost money, gambling caused health problems) and have experienced gambling problems (e.g., been criticized for betting) over the past 12 months (0 = never, 1 = sometimes, 2 = most of the time, 3 = almost always). The PGSI has demonstrated good internal consistency ($\alpha = 0.82$ for the current sample) and convergent validity with the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) and DSM-IV criteria (American Psychiatric Association, 1994) for pathological gambling (Ferris & Wynne, 2001).

Gambling motives. The Gambling Motives Questionnaire (GMQ; Stewart & Zack, 2008) was used to assess the frequency (1 = almost never/never to 4 = almost always) with which participants gambled for each of three motives: Enhancement (e.g., “Because it’s exciting”), Social (“Because it makes a social gathering more enjoyable”) and Coping (“To relax”). The three five-item subscales have good internal consistency (α s range from .81–.91 for the

current sample) and concurrent validity, with motives predicting gambling and problems over and above known gambling correlates (i.e., sex).

Daily diary measures

Positive and negative mood. Similar to other studies utilizing daily mood measures, mood was assessed using items from the Positive Affect Negative Affect Scale (PANAS-X; Watson & Clark, 1994) and the mood circumplex (Larsen & Diener, 1992). Daily mood ratings included six negative (unhappy, sad, nervous, annoyed, tired, bored) and six positive (happy, glad, excited, enthusiastic, relaxed, content) affect descriptors that varied in activation. Items were rated on a 5-point scale (1 = not at all to 5 = extremely). Participants were instructed to respond based on “the way you feel right now, that is, at the present moment.” Composite scores reflect differences in valence (i.e., positive vs. negative) as outlined in the PANAS and mood circumplex models, but collapse across ratings of activation. Other studies utilizing similar measures have found good internal consistency for mood ratings even when collapsing across different levels of activation (α s ranging from .73 to .92; Grant, Stewart, & Mohr, 2009; Kiene, Tennen, & Armeli, 2008; Simons, Gaher, Oliver, Bush, & Palmer, 2005) and we found good internal consistency for positive and negative mood ratings across the three times of day (morning, afternoon, and evening) for negative mood (α s = .79, .88, and .85) and positive mood (α s = .82, .80, and .77).

Gambling behavior. Each time they were prompted to fill out the survey, participants were asked to indicate if they had gambled since the last time they completed the survey. If they were currently gambling, they were asked to complete the gambling assessment at the next prompt. If participants had gambled then they completed a series of questions drawn from the Gambling Timeline Followback Questionnaire (G-TLFB; Weinstock, Whelan, & Meyers, 2004), including questions about type of gambling, time spent gambling, amount of money intended and actually spent, amount of money won/lost, and number of drinks consumed while gambling. Participants were also asked to indicate their reasons for initiating and for discontinuing gambling. One of the options for types of gambling was “gambling on the Internet” and online gambling status was determined based on participants indicating that they had gambled on the Internet at least once during the 30-day daily diary period.

Statistical analysis

All statistical analyses were conducted using SPSS 22.0. We used *t*-tests (continuous variables) and chi-square analyses (categorical variables) to examine differences between online and non-online gamblers on baseline demographic variables, gambling motives, and problem gambling scores. In addition, we used *t*-tests to examine differences between the two groups on their average ratings of positive and negative mood during the 30-day daily diary period. *T*-tests were also used to examine differences between the two gambling groups (online vs. non-online) on several gambling variables, including time spent gambling, the amount

of money intended vs. actually spent, the net amount of money won and the number of drinks consumed while gambling. These variables were based on averages across gambling events during the 30-day daily diary period. Multivariate logistic regression analysis was used to determine which variables were most important for predicting online gambling status. Finally, we used chi-square analyses to examine the relationship between types of gambling (online vs. non-online) and reasons for gambling before each gambling event and for discontinuing a gambling event during the 30-day daily diary period. In other words, we were interested in the reasons for initiating and discontinuing online vs. non-online gambling activities during the 30-day daily diary period.

Ethics

The study procedures were carried out in accordance with the Declaration of Helsinki. The research protocol was reviewed and received ethical approval by the Research Ethics Boards at the University of Toronto and Dalhousie University. All participants were informed about the study and all provided written informed consent prior to participating in the study.

RESULTS

Due to technical and participant scheduling issues, the total number of possible daily mood and gambling responses was 9,024 and 6,783 reports were made, with participants reporting on 1,254 gambling events over the 30 days of

the study. However, for the current analyses, we excluded events where the type of gambling (i.e., online vs. non-online) was not indicated. This resulted in 919 valid gambling events. Approximately half (50.9%) of the participants who engaged in online gambling during the 30 days also engaged in other types of gambling, with the majority also engaging in sports betting or betting on games of skill (71.7%), lotto or scratch tickets (54.7%), gambling in a casino (45.3%) or charity raffles (24.5%). As illustrated in Table 1, in terms of relationships between demographic variables and frequency of online gambling, participants who gambled online ($n = 53$) were more likely to be male (92.5%) and to have higher scores on a measure of problem gambling (the PGSI) than participants who did not gamble online ($n = 55$). In addition, online gamblers had higher coping motives for gambling on the GMQ and experienced greater negative affect during the 30 days of mood monitoring.

The gambling characteristics of online and non-online gamblers are also presented in Table 1. In terms of risky gambling behaviors, online gamblers spent more time gambling, and won more money gambling. Non-online gamblers consumed more drinks while gambling.

A multivariate logistic regression analysis was conducted to examine specific demographic, motive, mood- and gambling-related predictors of online vs. non-online gambling (see Table 2). To reduce the number of predictors in the regression analysis, only significant univariate predictors were included in the model. In addition, we included the total number of other gambling activities as a covariate to rule out the possibility that differences between online and non-online gamblers were due to online gamblers engaging in more types of gambling. Young men were almost nine

Table 1. Descriptive characteristics and group differences between online and non-online gamblers

	Online ($N = 53$) N (%) or M (SD)	Non-online ($N = 55$) N (%) or M (SD)	[Chi-square] or t -test	[Cramer's V] or η^2
Gender (male)	49 (92.4%)	39 (70.9%)	[8.30]**	[0.28]
Age	21.72 (1.60)	21.62 (1.68)	0.31	0.001
Ethnicity (Caucasian)	21 (39.6%)	27 (49.1%)	[0.99]	[0.10]
Live with parents	28 (52.8%)	24 (43.4%)	[0.91]	[0.09]
Income (more than \$20,000)	16 (30.2%)	10 (18.2%)	[2.15]	[0.14]
Problem gambling	6.41 (3.45)	4.51 (3.72)	2.76**	0.07
Gambling motives				
Enhancement	2.74 (0.68)	2.62 (0.55)	0.98	0.009
Social	2.08 (0.74)	2.23 (0.57)	-1.15	0.012
Coping	1.71 (0.63)	1.47 (0.52)	2.12*	0.04
Negative affect ^a	1.65 (0.50)	1.44 (0.35)	2.61*	0.06
Positive affect ^a	2.34 (0.65)	2.49 (0.71)	-1.09	0.01
Gambling variable ^a				
Time gambled (in minutes)	85.20 (54.90)	53.26 (52.44)	3.09**	0.08
Intended vs. actually spent ^b	-\$11.71 (47.34)	-\$5.98 (26.94)	0.78	0.006
Net wins/losses	\$24.02 (57.07)	\$5.63 (29.75)	2.11*	0.04
Number of drinks while gambling	0.43 (0.71)	1.02 (1.44)	-2.68**	0.06

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

^aThese constructs were assessed during the 30-day daily diary period and represent average values across the 30 days. ^bNegative values for intended vs. actually spent indicates that the participant spent more than intended.

Note: For Cramer's V : small effect = 0.10, medium effect = 0.30, large effect = 0.50; for η^2 : small effect = 0.02, medium effect = 0.13, large effect = 0.26.

Table 2. Multivariate logistic regression analysis predicting gambler status (online vs. non-online) from baseline characteristics, mood, and gambling behavior

	B	S.E.	Wald	OR	95% CI
Gender	2.18	0.79	7.58	8.85	1.87–41.81
Problem gambling	0.14	0.09	2.44	1.16	0.96–1.39
Enhancement motives	–0.01	0.49	0.00	1.00	0.38–2.60
Social motives	–0.38	0.41	0.88	0.68	0.31–1.52
Coping motives	0.77	0.54	2.04	2.17	0.75–6.26
Negative affect	1.25	0.64	3.79	3.50	1.01–12.36
Positive affect	–0.35	0.40	0.79	0.70	0.32–1.53
Time spent gambling	0.01	0.01	4.16	1.01	1.01–1.02
Net amount won	0.01	0.01	3.41	1.01	0.99–1.02
Number of drinks consumed	–0.66	0.30	4.79	0.52	0.29–0.93
Total non-online gambling	–0.26	0.21	1.55	0.77	0.51–1.16

Negative affect, positive affect, and all gambling behaviors were averaged across the 30-day daily diary period. All other measures are taken from the baseline assessment. Bolded values are significant at $p \leq .05$.

times more likely to be online gamblers than young women. In addition, experiencing greater negative affect and spending more time gambling were associated with a greater likelihood of online gambling, whereas consuming more drinks during gambling was associated with a lower likelihood of online gambling.

Finally, specific reasons for initiating and discontinuing online vs. other types of gambling were examined and results are presented in Tables 3 and 4. Online gambling events were more likely to be initiated in order to make money, pass the time, and to show skills. Online gambling events were less likely to be initiated for excitement, sociability, because friends were gambling, to beat someone at gambling, because gambling is risky, or because the gambler was feeling lucky. In addition, online gambling

events were more likely to be discontinued because the gambler had won enough money or because he/she felt upset, tired or bored. Non-online gambling was more likely to be discontinued because the gambler felt better or because his/her friends were stopping gambling.

DISCUSSION

The current study provides additional support for the finding that online gamblers experience more gambling problems, spend more time and win more money gambling compared to young adult gamblers who do not gamble online (Griffiths & Barnes, 2008; Griffiths et al., 2009; Ladd & Petry, 2002; Wood & Williams, 2009, 2011) and is the first

Table 3. Frequencies and chi-square analyses of the relationship between online gambling status and reasons for initiating gambling during the 30-day daily diary period

Reasons for initiating gambling	Online	Non-online	Chi-square statistics	Cramer's V
To make money	221 (80.7%)	426 (65.0%)	22.29***	0.153
Because it's fun	164 (59.9%)	397 (60.6%)	0.05	0.002
For the excitement	63 (23.0%)	231 (35.3%)	13.46***	0.115
I was feeling lucky	47 (17.2%)	186 (28.4%)	13.00***	0.121
Something to do; to pass the time	111 (40.5%)	175 (26.7%)	17.25***	0.135
Because my friends were gambling	16 (5.8%)	129 (19.7%)	28.16***	0.169
To be sociable	12 (4.4%)	124 (18.9%)	32.74***	0.183
To show my skills	65 (23.7%)	105 (16.0%)	7.65**	0.093
To relax	38 (13.9%)	93 (14.2%)	0.02	0.005
Felt like doing something risky	20 (7.3%)	78 (11.9%)	4.35*	0.076
To beat someone	13 (4.7%)	79 (12.1%)	11.59**	0.108
To get money back, to pay back money I've lost	24 (8.8%)	59 (9.0%)	0.02	0.005
To forget my worries	10 (3.6%)	35 (5.3%)	1.20	0.043
Because I was feeling depressed	9 (3.3%)	28 (4.3%)	0.50	0.022
Something to do while drinking	5 (1.8%)	19 (2.9%)	0.89	0.026
Because I was feeling nervous	2 (0.7%)	4 (0.6%)	0.04	0.007

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

Note: For Cramer's V : small effect = 0.10, medium effect = 0.30, large effect = 0.50; Values are bolded to indicate which type of gambling (online vs. non-online) was associated with the reason.

Table 4. Frequencies and chi-square analyses of the relationship between online gambling status and reasons for discontinuing gambling during the 30-day daily diary period

Reasons for discontinuing gambling	Online	Non-online	Chi-square statistics	Cramer's <i>V</i>
I got tired	120 (43.8%)	129 (19.7%)	57.20***	0.250
I was losing	84 (30.7%)	189 (28.9%)	0.30	0.019
I had won enough	85 (31.0%)	146 (22.3%)	7.88**	0.086
My friends were stopping	16 (5.8%)	130 (19.8%)	26.62***	0.172
Because I felt better	12 (4.4%)	85 (13.0%)	15.27***	0.125
It got boring	54 (19.7%)	81 (12.4%)	8.38*	0.091
I was getting upset	39 (14.2%)	60 (9.2%)	5.22*	0.074

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

Note: For Cramer's *V*: small effect = 0.10, medium effect = 0.30, large effect = 0.50; Values are bolded to indicate which type of gambling (online vs. non-online) was associated with the reason.

study to document these greater risks using daily diary data, which provides an estimate of gambling activity as it occurs. These findings likely reflect the convenience and availability of online gambling (McCormack, Shorter, & Griffiths, 2013; Shead et al., 2012), although it might reflect a tendency for online gamblers to be engaged in more types of gambling overall and not just greater risk with online gambling (Wood & Williams, 2009). However, we found that half of the online gamblers were only gambling online during the 30 days of the study and not participating in any other types of gambling during this time, indicating that young adult online-only gamblers may be a larger group than previously realized. In addition, when we included the number of other types of gambling in the multivariate regression model, the association between time spent gambling and online gambling remained significant. However, problem gambling and money won were no longer associated with online gambling status, suggesting that involvement in multiple types of gambling behavior accounts for at least part of the relationship between online gambling and both problem gambling severity and greater monetary wins.

It is interesting that non-online gamblers consumed more alcohol while gambling, both in the univariate and multivariate analyses. This is the one area where online gamblers are less at risk in terms of engaging in a behavior that further increases the likelihood of problem gambling (Ellery, Stewart, & Loba, 2005; Welte, Barnes, Wieczorek, Tidwell, & Parker, 2001). Although previous researchers have documented that drinking while gambling leads to impaired control over gambling behavior and results in larger bets and greater gambling losses (Giacopassi, Stitt, & Vandiver, 1998) the current findings suggest that drinking is primarily done in the context of non-online gambling activities (e.g., simultaneous drinking and gambling at a casino).

Regarding mood and motives for online gambling, we found that online gamblers experience more negative affect and are more motivated to gamble to cope with negative affect across a monthly period. However, enhancement motives were not different among online and non-online gamblers and online gambling episodes were not more likely to be initiated for negative affect alleviation reasons. Instead, online gambling episodes were more likely to be initiated to make money and reduce boredom (i.e., something to do to pass the time) and were more likely to be

discontinued because the online gambler felt upset, bored or tired. Other researchers have also found that young adults who gamble online endorse boredom as a gambling motive (Shead et al., 2012). It may be that the availability of online gambling is appealing for those young adults who have difficulty tolerating boredom, but then the online gambling itself becomes boring, tiresome or upsetting. This may lead to a cycle of boredom, then gambling to relieve boredom, followed by more boredom or fatigue and, in some cases, negative affect (i.e., feeling upset). The solitary nature of online gambling might also contribute to the feelings of boredom, fatigue or unhappiness associated with online gambling. In the current study the non-online gambler was more likely to stop gambling because he/she was feeling better and because his/her friends were stopping, indicating that non-online gambling was typically taking place in the context of a mood enhancing, social activity and the end of the social activity signaled the end of the gambling event.

It might also be the case that boredom is a component of, or a proxy for, anhedonia. Previous research has demonstrated significant correlations between boredom and depression of which anhedonia is a symptom (Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009; Farmer & Sundberg, 1986; Sommers & Vodanovich, 2000). However, recent research suggests that the relationship between boredom and depression is more complex. Boredom has been conceptualized in two ways: Boredom Susceptibility (characterized by sensation seeking, restlessness and a need for arousal) and Boredom Proneness (characterized by negative affect and withdrawal of self and one's attention) (Mercer-Lynn, Flora, Fahlman, & Eastwood, 2013). Mercer and Eastwood (2010) found that young adult gamblers who rated themselves higher on restlessness and sensation seeking were more likely to gamble to increase arousal, but gambling behavior was not related to Boredom Proneness, which is more consistent with depressive symptoms. However, their focus was on problem gambling in general and it may be that Boredom Proneness is associated with online gambling, whereas Boredom Susceptibility is associated with other types of gambling. Additional research is needed to further elucidate the specific relationship between boredom and online gambling and to explore some of the personality variables that distinguish online from non-online gamblers.

Limitations and future research

There are some limitations of the current study that should be noted. First, our sample was predominantly comprised of men. Although this is consistent with other studies examining (online) gambling behaviors (McCormack et al., 2013; Wood & Griffiths, 2007), the findings cannot be generalized to women gamblers whose reasons for online gambling may be different (McCormack, Shorter, & Griffiths, 2014). Future research should examine characteristics of women gamblers separately in order to gain a better understanding of this group. Second, the sample was also comprised of regular gamblers who varied in their gambling behavior and who had never received gambling treatment. To better understand factors associated with pathological gambling among online gamblers, future research should extend to individuals who are identified as problem or pathological gamblers (i.e., a treatment seeking sample).

Finally, we used a forced-choice response format to assess gamblers' reasons for initiating and discontinuing gambling. We selected reasons based on the motives literature (e.g., to cope with negative affect, to enhance positive affect, for social reasons, to win money), but this was not a validated measure and further research is needed to best capture the range of reasons that guide decisions to end gambling episodes, including reasons that reflect reaching pre-set limits for time, money or losses to determine whether online gamblers also show greater risk here as well (i.e., are less likely to discontinue for harm minimizing reasons) (Wohl et al., 2008).

Implications

Despite these limitations, what emerges from this study is a clearer picture of the young adult online gambler. Unlike the non-online young adult gambler who places bets on games or gambles in the casino while drinking with friends, the online gambler experiences greater negative affect and is motivated to gamble as a way of coping with negative affect. Online gambling is initiated as a way to make money and develop gambling skills while passing time but then discontinued because gambling has become boring, tiresome or upsetting or because enough money has been won. The non-online young adult gambler spends less time gambling but drinks during gambling episodes, which frequently occur in the context of friends. Non-online gambling events are sought because they are social, risky, competitive and exciting and are discontinued with the end of the social event because the gambler feels good.

These are important differences and suggest that, when working with young adults who are experiencing problem gambling, different approaches may be needed for reducing online vs. non-online gambling. For example, this study provides preliminary evidence that intervention efforts targeting online gambling in particular, should target coping strategies for managing negative affect and boredom whereas strategies to reduce non-online gambling should focus on the social aspects of gambling such as exploring alternative activities for achieving social rewards, and minimizing drinking while gambling.

Funding sources: This study was funded by a Level III Research Award from the Ontario Problem Gambling Research Centre.

Authors' contribution: AG, SS, PH and GF all contributed to the study concept and design, and interpretation of the data. AG, SS, and NVC provided supervision for data collection. NVC provided statistical support and AG conducted the data analysis. All authors reviewed and edited the manuscript and approved the final draft.

Conflict of interest: The authors declare no conflict of interest.

REFERENCES

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction, 97*(5), 487–499.
- Ellery, M., Stewart, S. H., & Loba, P. (2005). Alcohol's effects on video lottery terminal (VLT) play among probable pathological and non-pathological gamblers. *Journal of Gambling Studies, 21*(3), 299–324.
- Fahlman, S. A., Mercer, K. B., Gaskovski, P., Eastwood, A. E., & Eastwood, J. D. (2009). Does a lack of life meaning cause boredom? Results from psychometric, longitudinal, and experimental analyses. *Journal of Social and Clinical Psychology, 28*(3), 307–340.
- Farmer, R., & Sundberg, N. D. (1986). Boredom proneness—the development and correlates of a new scale. *Journal of Personality Assessment, 50*(1), 4–17.
- Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index*. Ottawa, ON: Canadian Centre on Substance Abuse.
- Giacopassi, D., Stitt, B. G., & Vandiver, M. (1998). An analysis of the relationship of alcohol to casino gambling among college students. *Journal of Gambling Studies, 14*(2), 135–149.
- Goldstein, A. L., Stewart, S. H., Hoaken, P. N., & Flett, G. L. (2014). Mood, motives, and gambling in young adults: An examination of within- and between-person variations using experience sampling. *Psychology of Addictive Behaviors, 28*, 217–228.
- Grant, V. V., Stewart, S. H., & Mohr, C. D. (2009). Coping-anxiety and coping-depression motives predict different daily mood-drinking relationships. *Psychology of Addictive Behaviors, 23*(2), 226–237.
- Griffiths, M., & Barnes, A. (2008). Internet gambling: An online empirical study among student gamblers. *International Journal of Mental Health and Addiction, 6*(2), 194–204.
- Griffiths, M., Wardle, H., Orford, J., Sproston, K., & Erens, B. (2009). Sociodemographic correlates of Internet gambling: Findings from the 2007 British Gambling Prevalence Survey. *Cyberpsychology & Behavior, 12*(2), 199–202.

- Griffiths, M. D., & Parke, J. (2002). The social impact of Internet gambling. *Social Science Computer Review*, 20(3), 312–320.
- Hopley, A. A., & Nicki, R. M. (2010). Predictive factors of excessive online poker playing. *Cyberpsychology, Behavior, and Social Networking*, 13(4), 379–385.
- Kairouz, S., Paradis, C., & Nadeau, L. (2012). Are online gamblers more at risk than offline gamblers? *Cyberpsychology, Behavior, and Social Networking*, 15(3), 175–180.
- Kiene, S. M., Tennen, H., & Armeli, S. (2008). Today I'll use a condom, but who knows about tomorrow: A daily process study of variability in predictors of condom use. *Health Psychology*, 27(4), 463–472.
- Ladd, G. T., & Petry, N. M. (2002). Gender differences among pathological gamblers seeking treatment. *Experimental and Clinical Psychopharmacology*, 10(3), 302.
- Larsen, R. J., & Diener, E. (1992). Promises and problems with the circumplex model of emotion. In M. S. Clark (Ed.), *Review of personality and social psychology: Emotion* (pp. 25–59). Newbury Park: Sage Publications, Inc.
- Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). Social media and mobile Internet use among teens and young adults: Millennials. Pew Internet & American Life Project. Retrieved on January 22, 2015 from http://www.pewinternet.org/files/old-media/Files/Reports/2010/PIP_Social_Media_and_Young_Adults_Report_Final_with_toplines.pdf
- 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.
- Lloyd, J., Doll, H., Hawton, K., Dutton, W. H., Geddes, J. R., Goodwin, G. M., & Rogers, R. D. (2010). How psychological symptoms relate to different motivations for gambling: An online study of Internet gamblers. *Biological Psychiatry*, 68(8), 733–740.
- Matthews, N., Farnsworth, B., & Griffiths, M. D. (2009). A pilot study of problem gambling among student online gamblers: Mood states as predictors of problematic behavior. *CyberPsychology & Behavior*, 12(6), 741–745.
- McCormack, A., & Griffiths, M. D. (2012). Motivating and inhibiting factors in online gambling behaviour: A grounded theory study. *International Journal of Mental Health and Addiction*, 10(1), 39–53.
- McCormack, A., Shorter, G. W., & Griffiths, M. D. (2013). An examination of participation in online gambling activities and the relationship with problem gambling. *Journal of Behavioral Addictions*, 2(1), 31–41.
- McCormack, A., Shorter, G. W., & Griffiths, M. D. (2014). An empirical study of gender differences in online gambling. *Journal of Gambling Studies*, 30(1), 71–88.
- McCready, J., & Adlaf, E. (2006). *Performance and enhancement of the Canadian Problem Gambling Index (CPGI): Report and recommendations*. Healthy Horizons Consulting. Ottawa, ON: Canadian Centre on Substance Abuse.
- Mercer, K. B., & Eastwood, J. D. (2010). Is boredom associated with problem gambling behaviour? It depends on what you mean by 'boredom'. *International Gambling Studies*, 10(1), 91–104.
- Mercer-Lynn, K. B., Flora, D. B., Fahlman, S. A., & Eastwood, J. D. (2013). The measurement of boredom: Differences between existing self-report scales. *Assessment*, 20(5), 585–596.
- Moodie, C., & Finnigan, F. (2005). A comparison of the autonomic arousal of frequent, infrequent and non-gamblers while playing fruit machines. *Addiction*, 100(1), 51–59.
- 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(5), 325–330.
- Rockloff, M. J., Signal, T., & Dyer, V. (2007). Full of sound and fury, signifying something: The impact of autonomic arousal on EGM gambling. *Journal of Gambling Studies*, 23(4), 457–465.
- Sharpe, L. (2004). Patterns of autonomic arousal in imaginal situations of winning and losing in problem gambling. *Journal of Gambling Studies*, 20(1), 95–104.
- Shead, N. W., Derevensky, J. L., Fong, T. W., & Gupta, R. (2012). Characteristics of Internet gamblers among a sample of students at a large, public university in southwestern United States. *Journal of College Student Development*, 53(1), 133–148.
- Simons, J. S., Gaher, R. M., Oliver, M. N., Bush, J. A., & Palmer, M. A. (2005). An experience sampling study of associations between affect and alcohol use and problems among college students. *Journal of Studies on Alcohol and Drugs*, 66(4), 459–469.
- Sommers, J., & Vodanovich, S. J. (2000). Boredom proneness: Its relationship to psychological- and physical-health symptoms. *Journal of Clinical Psychology*, 56(1), 149–155.
- Stewart, S. H., & Zack, M. (2008). Development and psychometric evaluation of a three-dimensional Gambling Motives Questionnaire. *Addiction*, 103(7), 1110–1117.
- Stewart, S. H., Zack, M., Collins, P., & Klein, R. M. (2008). Subtyping pathological gamblers on the basis of affective motivations for gambling: Relations to gambling problems, drinking problems, and affective motivations for drinking. *Psychology of Addictive Behaviors*, 22(2), 257.
- Watson, D., & Clark, L. A. (1994). *Manual for the positive and negative affect schedule – Expanded form*. Ames, IA: University of Iowa.
- Weinstock, J., Whelan, J. P., & Meyers, A. W. (2004). Behavioral assessment of gambling: An application of the timeline follow-back method. *Psychological Assessment*, 16(1), 72–80.
- Welte, J., Barnes, G., Wieczorek, W., Tidwell, M., & Parker, J. (2001). Alcohol and gambling pathology among US adults: Prevalence, demographic patterns and comorbidity. *Journal of Studies on Alcohol and Drugs*, 62(5), 706.
- Wiebe, J., Mun, P., & Kauffman, N. (2006). *Gambling and problem gambling in Ontario 2005: Final report submitted to Ontario Problem Gambling Research Centre*. Toronto: Responsible Gambling Council.
- Winters, K. C., Bengston, P., Door, D., & Stinchfield, R. (1998). Prevalence and risk factors of problem gambling among college students. *Psychology of Addictive Behaviors*, 12(2), 127–135.
- Wohl, M. J., Lyon, M., Donnelly, C. L., Young, M. M., Matheson, K., & Anisman, H. (2008). Episodic cessation of gambling: A numerically aided phenomenological assessment of why gamblers stop playing in a given session. *International Gambling Studies*, 8(3), 249–263.
- Wood, R. T., & Griffiths, M. D. (2007). A qualitative investigation of problem gambling as an escape-based coping strategy. *Psychology and Psychotherapy: Theory, Research and Practice*, 80(1), 107–125.

- Wood, R. T., Griffiths, M. D., & Parke, J. (2007). Acquisition, development, and maintenance of online poker playing in a student sample. *CyberPsychology & Behavior, 10*(3), 354–361.
- Wood, R. T., & Williams, R. J. (2009). *Internet gambling: Prevalence, problems, and policy options. Final report prepared for the Ontario Problem Gambling Research Centre.* Guelph, Ontario.
- Wood, R. T., & Williams, R. J. (2011). A comparative profile of the Internet gambler: Demographic characteristics, game-play patterns, and problem gambling status. *New Media & Society, 13*(7), 1123–1141.
- Wulfert, E., Roland, B. D., Hartley, J., Wang, N., & Franco, C. (2005). Heart rate arousal and excitement in gambling: Winners versus losers. *Psychology of Addictive Behaviors, 19*(3), 311–316.