The Social Casino Gaming-Gambling Link: Motivation for Playing Social Casino Games Determines Whether Self-Reported Gambling Increases or Decreases Among Disordered Gamblers

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Abstract

Engagement with social casino games (i.e., free online casino-like games available on social networking sites) has been found to be a risk factor for increased gambling behaviours (Kim, Wohl, Salmon, Gupta, & Derevensky, 2015). However, this may not be true for all social casino gamers. In the current research, we tested the idea that motivation to play social casino games will predict changes in self-reported gambling behaviours among disordered gamblers. Results showed that disordered gamblers ($N = 140$) who were motivated to play social casino games for the social connection it provides or for skill building reported an increase in their gambling. Conversely, playing in order to cope with negative life events or for excitement was not predictive of gambling. However, gamblers who reported playing social casino games to reduce cravings to gamble reported an overall decrease in gambling. The implications of social casino games as a potential harm reduction strategy for *some* disordered gamblers are discussed.

Keywords: social casino gaming, disordered gambling, gambling, motivation, craving, benefits, harm

Résumé

Il a été démontré que jouer à des jeux sociaux de casino (c'est-à-dire des jeux de casino gratuits en ligne accessibles dans les sites de réseautage social) constitue un facteur de risque d'accroissement des comportements liés au jeu (Kim, Wohl, Salmon, Gupta et Derevensky, 2015). Cette affirmation pourrait cependant ne pas être vraie de tous les adeptes des jeux sociaux de casino. Dans le cadre de la présente

recherche, nous avons mis à l'épreuve l'hypothèse selon laquelle la motivation de jouer à des jeux sociaux de casino serait une variable explicative des comportements de jeu autodéclarés chez les personnes ayant un problème de jeu excessif. Les résultats indiquent que les joueurs compulsifs (N=140) dont la motivation à l'égard des jeux sociaux de casino était de créer des liens sociaux ou de parfaire leurs habiletés ont déclaré avoir observé une augmentation de leurs comportements associés au jeu. Inversement, jouer pour mieux faire face à des événements négatifs dans la vie ou pour le plaisir est une motivation qui ne permet d'effectuer aucune prédiction quant aux comportements liés au jeu. Toutefois, les joueurs qui ont dit jouer à des jeux sociaux de casino pour réduire leur envie de jouer ont affirmé avoir observé une diminution de leurs comportements de jeu. L'étude traite des incidences du recours aux jeux sociaux de casino comme stratégie de réduction des effets négatifs du jeu chez certains joueurs compulsifs.

Introduction

Social casino games are free-to-play, casino-like games available on social networking sites (e.g., Facebook). An important aspect of social casino games is that they are designed to mimic the look and feel of online gambling games (Bramley & Gainsbury, 2015; Gainsbury, Hing, Delfabbro, & King, 2014a), which is a possible explanation for why people who engage in social casino gaming are also more likely to gamble (Gainsbury, Russell, & Hing, 2014b; Parke, Wardle, Rigbye, & Parke, 2013). Moreover, some social casino gamers who have never gambled are lured to gambling as a result of their social casino game play. For example, Kim, Wohl, Salmon, Gupta, and Derevensky (2015) showed that 26% of social casino gamers who had previously never gambled online migrated to online gambling when re-contacted 6 months later. With the link between social casino gaming and gambling crystalizing, researchers in the field of gambling studies have expressed concern that frequent engagement with social casino games may normalize gambling behaviour, thus increasing its frequency (Gainsbury et al., 2015b; Griffiths, 2010; Kim et al., 2015).

On the other hand, anecdotal evidence suggests that playing social casino games may reduce future gambling behaviours, especially among disordered gamblers (see Gainsbury, Hing, Delfabbro, Dewar, & King, 2015a). That is, some disordered gamblers may use social casino games as a proxy or substitute for gambling. Disordered gamblers have self-reported that they use social casino games as a substitute to help reduce their gambling (Gainsbury et al., 2015a; Parke et al., 2013). Thus, whether social casino games increase or decrease gambling may stem, in part, from gamblers' motivation for engaging with social casino games. Disordered gamblers may play social casino games, among other reasons, to build their skills at the game, to escape from negative life events (i.e., play as a coping mechanism), for

the excitement (i.e., enhancement), or for the social connections that it can provide—factors that have been shown to facilitate disordered gambling (see S. H. Stewart & Zack, 2008). However, disordered gamblers might also play social casino games to satiate a craving to gamble (Gainsbury et al., 2015a), a motivation that might decrease gambling. To date, however, no empirical study has examined how various motivations for engaging with social casino games (uniquely) influence gambling behaviour. The research herein fills this empirical gap.

Social Casino Gaming and Gambling

Social casino games are readily available for play on popular social networking sites such as Facebook. As a result, it does not take long for users to become aware of the plethora of casino-styled social games available for play. Non-social casino game users can be introduced to these games when their friends share their scores or "like" the page of the social casino gaming operator. Social casino game companies place ads on Facebook in an attempt to entice new users. In fact, social casino game ads are the most common way for players to become aware of social casino games (SuperData, 2015). Additionally, interested users can find social casino games by typing "casino games" into the search bar in Facebook.

Social networking users can now engage in poker, blackjack, and slots, among other casino-styled games. In contrast to gambling games, in social casino games, no money is required to initiate play and no money is won or lost on the game's outcome. Instead, the social casino gaming operator provides the players with free "seed" credits to wager on the outcome of the game, and the aim of the player is to win more credits for continued play (Vanhatupa, 2013). However, players can purchase additional credits for monetary payment (known as micro-transactions) in order to continue play or progress in the games.

Although monetary-based outcomes are absent from social casino games, some social casino games have been built to have the same auditory stimulations (e.g., alarms, sound of coins dropping into a metal pan) and visual features found in online gambling games—both of which are meant to mimic the look and sounds of land-based gambling games (see Bramley & Gainsbury, 2015). These visual and auditory features of social casino games (akin to gambling games) are potentially positively reinforcing, which may propel further use of the game (Bramley & Gainsbury, 2015; Derevensky, Gainsbury, Gupta, & Ellery, 2013). Given the similarities between social casino games and gambling, it is perhaps unsurprising that many social casino gamers also gamble (Gainsbury et al., 2014b) and that some social casino gamers eventually migrate to online gambling (Kim et al., 2015).

Particularly worrisome from a public health perspective is that social casino gaming has been linked to a greater risk of individuals endorsing indicators of disordered gambling (King, Delfabbro, Kaptsis, & Zwaans, 2014). The reason for this link might be found in people's motivation to play online games. According to Griffiths (2003), games on the Internet have the potential to provide short-term comfort,

excitement, and/or distraction from daily routines and escape for those who might wish to leave their troubled world behind. In other words, people may be motivated to play social casino games to inject some excitement into their lives or to help them contend with, among other things, daily life problems—motivations linked to disordered gambling (S. H. Stewart & Zack, 2008). To date, however, no research study has examined whether motivation to play social casino games influences subsequent gambling behaviour. The present research was conducted to fill this gap in the literature.

Does Motivation to Play Social Casino Games Influence Subsequent Gambling?

There is an array of possible reasons for why people play social casino games. One potential reason to engage in these games is to build skill for the equivalent gambling game (see Kim, Wohl, Gupta, & Derevensky, 2016). That is, some people may try to hone their gambling skills by playing the free versions of the game, even when skill building is not objectively possible (e.g., in games of pure chance). This is because casino games are constructed to blur the lines between chance and skill, which leads players to believe that they are skilled by virtue of their success at the games (Wohl, Stewart, & Young, 2011). Additionally, the payout rates on free versions of casino games are typically higher than is observed in online or land-based casino games (Sévigny, Cloutier, Pelletier, & Ladouceur, 2005). Putting a dark line under the issue, the success that social casino gamers experience as a result of higher payout rates may lead them to expect the same successes when they gamble, which would have implications for their future gambling behaviour.

Indeed, Frahn, Delfabbro, and King (2015) found that people who played a free version of a casino game with an inflated payout rate (compared with a standard payout rate) placed higher bets during a subsequent gambling session. These investigators argued that the results were due to a false sense of skill that developed in the inflated payout rate condition. In line with this contention, research has shown that people who believe (or are manipulated to believe) that they have gambling-related skill or ability in games of chance gamble with greater frequency and with larger amounts of money than do those who do not have such beliefs (Goodie, 2005; Moore & Ohtsuka, 1999; Wohl & Enzle, 2002, 2003). By extension, disordered gamblers who think that their skills can be enhanced via social casino games may increase their gambling as a result of social casino game play.

Disordered gamblers may also be motivated to engage with social casino games in order to help them cope with negative life events—a situation that would be akin to S. H. Stewart and Zack's (2008) observation that many disordered gamblers use gambling as a means to cope or escape via the dissociation that often occurs as a result of gambling (see also Diskin & Hodgins, 2001; M. J. Stewart & Wohl, 2013; Wood & Griffiths, 2007). Social casino games share many of the same functional characteristics that facilitate dissociation in gambling games (e.g., the auditory and visual stimulation; Bramley & Gainsbury, 2015). As a result, coping needs may be

satisfied via social casino game play, which may in turn decrease gambling behaviour.

Similarly to what occurs with coping motives, there is a symmetry between the social rewards that people get from playing social casino games and gambling. According to Ocean and Smith (1993) and S. H. Stewart and Zack (2008), one of the fundamental motivations for gambling is the opportunity for socialization and the sense of connectedness with others that it can provide. That is, some people are motivated to gamble because it satisfies the player's social needs. Although Gainsbury et al. (2015a) found that socialization is not a common motivation for engaging in social casino games, social casino games may be socially rewarding. Indeed, social casino gaming is typically embedded in social networking sites such as Facebook. In focus groups conducted with social casino gamers, Kim et al. (2016) found that some people play social casino games to feel connected with others. Disordered gamblers who desire social connection may find that engagement with social casino games satisfies their needs for social interactions, which should also result in decreased gambling behaviours.

S. H. Stewart and Zack (2008), as well as others (e.g., Dechant & Ellery, 2011; Lee, Chae, Lee, & Kim, 2007; Lister, Wohl, & Davis, 2015), also provided evidence that some people are motivated to gamble in order to fulfill their psychological need for fun and excitement. These enhancement motives are positively associated with gambling frequency and symptoms of disordered gambling (S. H. Stewart & Zack, 2008). An important aspect of social casino games, is that, like gambling games, they are designed to provide the player with a sense of excitement (Derevensky et al., 2013; Sapsted, 2013). However, the amount of excitement that can be derived from social casino games is limited because nothing of monetary value is wagered (see Wulfert, Franco, Williams, Roland, & Maxon, 2008, for a discussion on the role of money in the excitement of gambling). Thus, disordered gamblers are unlikely to be motivated to play social casino games for enhancement. The lack of enhancement that they derive from social casino games may, in fact, increase subsequent gambling—a place where their enhancement needs can be satisfied.

Lastly, Parke et al. (2013) argued that social casino games might quench the desire to gamble. Put another way, playing social casino games may reduce cravings to gamble. Gambling behaviour may decrease as a result of social casino game play. If this is shown to be the case, social casino games may have a responsible gambling utility, to say nothing of the potential clinical applications (i.e., clinicians may suggest that disordered gamblers play social casino games as a proxy for gambling). Anecdotal evidence supports this contention. Specifically, in a qualitative study conducted by Gainsbury and colleagues (2015a), some social casino gamers reported using these games as a way to help them avoid engaging in gambling. Although social casino games may normalize gambling, it is possible that social casino gaming can also be used to facilitate more responsible (i.e., reduced) gambling among gamblers motivated to reduce their cravings, which could ultimately decrease disordered gambling (see also Parke et al., 2013). In this way, social casino gaming

may serve as a way for some disordered gamblers to help decrease their gambling behaviours.

Motivations for social casino game play do not occur in isolation. People might have any number of motivations for engagement in social casino gaming. For example, people may be motivated to play social casino games to escape and to reduce their craving to gamble. To date, however, no empirical study has examined how motivations for engaging in social casino gaming affect future gambling behaviours, particularly among disordered gamblers who engage in social casino games.

Overview of the Current Research

Although the current body of empirical literature on social casino games has demonstrated that these games may increase gambling among non-gamblers and recreational gamblers (see Gainsbury et al., 2015b; Griffiths, 2010; Kim et al., 2015, 2016), there is a paucity of research examining the effects of social casino game play among disordered gamblers. In order to empirically assess the relationship between motives for playing social casino games and changes in gambling behaviour, we recruited a community sample of disordered gamblers who engage in social casino games. Because of the preliminary nature of this investigation, we were hesitant to make any strong predictions about the impact that motivations would have on gambling behaviour. However, on the basis of the existing literature, we hypothesized that social and coping motives to play social casino games might decrease gambling (because social casino gaming would provide the same reinforcement as gambling). Conversely, we hypothesized that people who play social casino games to build their skill, as well as those who play for enhancement purposes, would report that engagement with social casino games increased their gambling. Lastly, we hypothesized that disordered gamblers who play social casino games to decrease their craving to gamble would report that engagement in social casino games decreased their gambling.

Method

Participants

Two-hundred seventy-one (179 males, 89 females, 3 unreported) gamblers who play social casino games were recruited from Amazon.com's Mechanical Turk (Mturk). Of the 271 participants, 140 were moderate or disordered gamblers (95 males, 43 females, 2 unreported) according to the Problem Gambling Severity Index (Ferris & Wynne, 2001). Because our focus was on the impact of social casino gaming on gambling among people who gamble excessively, all subsequent analyses used this subsample.[1] For the sake of parsimony, we collapsed the subsample across the moderate and disordered categories, but still refer to it as comprising disordered gamblers. The age of the participants ranged from 19 to 70 years ($M = 31.01$, $SD = 10.10$). All participants were provided $0.75 US for completing the study. Remuneration was based on normative rates for conducting such a study on MTurk

(see Mason & Suri, 2012). Remuneration tends to be low because people on MTurk participate in research out of interest or to pass the time rather than for the sake of monetary compensation, making MTurk a good source of data (Buhrmester, Kwang, & Gosling, 2011).

Procedure

Participants who agreed to participate were provided with a link to the online survey hosted by Qualtrics. After providing consent, participants completed a series of questionnaires that measured the variables of interest. Upon completion of the questionnaires, participants were automatically directed to the debriefing pages.

An ethics certificate was obtained to conduct this study from the Research Ethics Board at the authors' home institution.

Measures

Problem gambling severity. The Problem Gambling Severity Index (Ferris & Wynne, 2001) was used to measure the participant's level of problem gambling. The participants were asked to indicate on a scale of 0 to 3 (0 = *never*, 3 = *almost always*) how often they had experienced a certain behaviour or emotion in the past 12 months. The index consists of nine (α = .93) items that assess problem gambling. Examples of questions include the following: "Have you borrowed money or sold anything to get money to gamble?" or "Have you felt that you might have a problem with gambling?" The participant's scores were then summed in order to calculate their level of problem gambling and categorized as either non-problem (0), low risk (1-2), or moderate and problem (3 +).

Motivation for playing social casino games. Motives for playing social casino games were assessed by using an abridged, six-item version of the Gambling Motives Questionnaire (S. H. Stewart & Zack, 2008). To this end, two items (r = .62) were used to measure coping motives: "I play social casino games to forget my worries" and "I play social casino games to cheer me up when I'm in a bad mood." Two items (r = .68) were used to measured social motives: "Because social casino games are what most of my friends do" and "I play social casino games to be sociable." Finally, two items (r =.42) were used to measure enhancement motives: "Because I like the feeling I get playing social casino games" and "Because social casino games are fun." The responses for all items were anchored at 1 (*almost never/never*) and 4 (*almost always*).

Skill building. Two items (r = .73) of our own design assessed whether playing social casino games was used as a tool to develop skill for later gambling behaviours: "I play social casino games to practice before I play for real money" and "I play social casino games to build my skills." Responses were anchored at 1 (*almost never/ never*) and 4 (*almost always*).

Gambling urge reduction.   Lastly, playing social casino games for gambling urge reduction was measured by using a six-item scale (α = .79) of our own design. Responses were anchored at 1 (*strongly disagree*) and 7 (*strongly agree*). The items included were as follows: "When I play social casino games, it seems to reduce my urge to gamble for real money," "I purposely play social casino games to reduce my desire to gamble," "Playing social casino games seems to trigger my desire to gamble" (reverse coded), "My craving to gamble seems to decrease when I play social casino games," "When I want to decrease my craving to gamble, I often play social casino games," and "I don't play social casino games to lessen my gambling-related urges" (reverse coded).

Gambling behaviours. Self-reported changes in gambling behaviour were measured with a single item. The response was anchored at -3 (*My gambling behaviour has decreased as a result of playing social casino games*) and 3 (*My gambling behaviour has increased as a result of playing social casino games*).

Results

Preliminary Results[2]

Table 1 shows the means and standard deviations of all measured variables, as well as the correlation between measured variables.

Neither age, ps > .48, nor sex, ps > .06, had an effect on any of the measured variables with the exception of skill building. Specifically, there was an age and sex effect on playing social casino games to build skill, p = .003 and p = .05, respectively. We therefore controlled for sex and age in all subsequent analyses.[3]

Participants who reported increased gambling behaviour reported more social motives (r = .18, p = .02) and a desire to play social casino games to build skill

Table 1
Correlations Between All Measured Variables (Means and Standard Deviations on the Diagonal)

Variable	Social motives	Skill-building motives	Coping motives	Enhancement motives	Urge reduction motives	Gambling behaviours
Social motives	2.14 (.86)	.16	.27***	.29***	.33***	.18*
Skill-building motives		2.64 (.87)	.20**	.28***	.03	.30***
Coping motives			2.31 (.80)	.30***	.21**	.08
Enhancement motives				2.97 (.55)	.14*	.08
Urge reduction motives					4.04 (1.36)	-.31***
Gambling behaviours						.12 (1.26)

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

(r = .30, p < .001). Participants who reported decreased gambling behaviour reported higher desire to play social casino games to reduce their urges to gamble (r = -.31, p < .001). Lastly, neither coping nor enhancement motives were significantly related to self-reported changes in gambling behaviour (r = .09, p = .16; r = .08, p = .19).

Main Results

In order to assess whether motives for playing social casino games predicted self-reported changes in gambling behaviour, we conducted a multiple regression analysis with all the motives entered simultaneously. This analysis showed that, together, motives for playing social casino games accounted for a significant amount of the variance in self-reported changes in gambling behaviour $F(7, 127) = 6.59$, p < .001, R^2 = .27, $R^2_{adjusted}$ = .23.

Using social casino games to cope with negative life events did not uniquely predict self-reported changes in gambling behaviour, β = .03, $t(127)$ = .38, p = .70. That is, disordered gamblers who indicated that they played social casino games for coping motives did not experience changes in their self-reported gambling behaviour as a result of playing social casino games. Likewise, enhancement motives did not uniquely predict self-reported changes in gambling behaviour, β = -.03, $t(127)$ = -.31, p = .76. In contrast, motivations that pertained to the social aspect of social casino games, β = .29, $t(127)$ = 3.32, p = .001, skill building, β = .28, $t(127)$ = 3.35, p = .001, and reducing gambling-related urges, β = -.41, $t(127)$ = -5.01, p < .001, all uniquely predicted self-reported changes in gambling behaviour. Specifically, playing social casino games for social reasons and to practice and build up skills for future gambling activity was related to subsequent increases in self-reported gambling. However, as predicted, disordered gamblers who used social casino games as a tool to reduce their urge to gamble reported a decrease in their gambling behaviour as a consequence of playing social casino games.

Discussion

Social casino games are a popular (and profitable) form of gaming on the Internet (Grubb, 2015), a form that has continued to grow at a rapid rate. As a result, increased research attention has been focused on social casino games, which replicate gambling activities (but are free to play). Specifically, researchers have expressed concern that engagement in social casino gaming may be a gateway to online gambling (Gainsbury et al., 2014a) and empirical research has substantiated this concern (Kim et al., 2015). Herein, we started from the premise that social casino gaming may not have a wholly catalyzing impact on gambling, particularly among disordered gamblers. Indeed, anecdotal evidence suggests some disordered gamblers use social casino games as a way to reduce their gambling behaviour (Gainsbury et al., 2015a). We argue that the effects of social casino gaming on gambling behaviours likely depends on the disordered gambler's motivation for playing social casino games.

Results showed that disordered gamblers who were motivated to play social casino games for social reasons reported increased gambling. In other words, social motivations for playing social casino games are a predictor of increased gambling, which was contrary to our hypothesis. It is possible that the social connections provided by playing social casino games are reinforcing to the disordered gambler, but not entirely satisfying because they do not allow face-to-face social contact. We did not, however, collect data on the quality of socialization that social casino games provide. As a result, this possible explanation for the result is purely speculative. We also found that playing social casino games as a means to build skill was associated with increased gambling. This association makes intuitive sense. The player who uses social casino games as a practice ground for gambling should eventually want to apply their newly honed "skill" for real money (i.e., gambling). Additionally, by practicing their gambling skills in a no-risk environment (i.e., no real money wagered), and winning, gambling behaviour may be reinforced and maintained. Thus, playing social casino games to build skill poses a significant risk for some disordered gamblers.

We find it interesting that social casino game play, as motivated by a desire to cope with negative life events, was not associated with changes in gambling behaviour. One possible explanation for this non-significance may be that social casino games do not allow the person to escape their negative life circumstances in the same manner as gambling does. It is possible, for example, that social casino games do not adequately facilitate dissociation—a psychological state in which players lose track of time and space, thus allowing escape from their current lived experiences (see Jacobs, 1986). Dissociation may fail to occur if players are not adequately engaged in the free-to-play version of the casino game. It would behoove researchers to examine this possibility in future studies.

Playing social casino games for enhancement reasons, akin to the case for coping motives, was not a significant predictor of self-reported changes in gambling behaviour. The lack of an effect for enhancement may be because the amount of excitement that can be derived from social casino games is limited when nothing of monetary value is wagered. According to Wulfert and colleagues (2008), the possibility of winning money is the primary source of excitement that players derive from gambling. In the absence of an opportunity to win money, disordered gamblers are unable to satisfy their enhancement needs via social casino gaming, which would undermine any gambling-reducing utility of social casino game play.

An important finding, and in line with our prediction, was that playing social casino games as a means to reduce gambling urges was associated with a decrease in self-reported gambling. Thus, there appears to be some symmetry between social casino game play and noted use of e-cigarettes among smokers or non-alcoholic beverages among problem drinkers. Specifically, e-cigarettes and non-alcoholic beverages are often used as replacement therapies to help with the cessation of cravings for the respective substances (Bullen et al., 2013; Polosa et al., 2013; Siegel, Tanwar, & Wood, 2011). In this light, the results suggest that social casino gaming may be a viable replacement for gambling among *some* disordered gamblers.

Specifically, social casino games might be an effective tool to assist disordered gamblers who want to moderate (i.e., cut down) their gambling behaviours. However, for those with abstinence goals, social casino games might be too similar to online gambling games and may act as a gambling cue (i.e., situations or observations that trigger the desire to gamble). Indeed, gamblers exposed to gambling cues in a virtual environment reported higher levels of craving to gamble than did controls (Park et al., 2015). For gamblers with moderation goals, on the other hand, social casino games may be used in conjunction with gambling to help keep them within their goals of cutting back. In this light, the research presented herein provides (to our knowledge) the first empirical support for the contention that social casino games may be an effective harm reduction strategy for the treatment of disordered gambling. More research is needed to examine the utility of social casino games as a potential harm reduction strategy for disordered gamblers.

Limitations

It is important to note some limitations. First, although the correlation between the two enhancement items was statistically significant, it was not as strong as the correlations observed for the other social casino gaming motive subscales. This lack of a strong correlation may have created noise that contributed to the insignificant effect of enhancement motives on self-reported gambling behaviour change. Second, we used only two items to assess coping, social, enhancement, and skill-building motives to play social games. The rationale for using only two items was that participants who complete online surveys want those surveys to be short (Schulze, Seedorf, Geiger, Kaufmann, & Schader, 2011). Nonetheless, in future research, methodological rigour would be improved by having more than two items to assess each motive. Lastly, participants were asked to subjectively evaluate how playing social casino games has influenced their gambling. An objective measure of gambling behaviour (and changes in that behaviour) was not included in the research. Additionally, the subjective measure did not specify *how* subsequent gambling behaviour changed (i.e., whether there was a change in the amount of time or money spent gambling). A more objective measure of changes in the amount of time and money spent gambling subsequent to playing social casino games would provide a more accurate representation of how social casino gaming influences gambling.

Conclusion

The consequence of social casino gaming has begun to pique the interest of those in the field of gambling studies. To date, most discourse has focused on the potential impact that social casino games may have on the normalization of gambling (Griffiths, 2010) and thus potential migration to gambling (see Kim et al., 2015). In line with this research, we showed that social casino games increased self-reported gambling among disordered gamblers who are motivated to play for social or skill-building reasons. We also showed that social casino games reduced self-reported gambling among disordered gamblers who use the games as a proxy for

gambling. Thus, social casino gaming might not be wholly bad for disordered gamblers.

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Endnotes

[1]At the request of a reviewer, we also conducted all analyses with the full sample and with only the non-problem and low-risk gamblers. With the full sample, the pattern of results observed was identical to that reported with the moderate-risk and problem gambling sample. However, the results for the non-problem and low-risk gamblers differed on multiple variables. First, both social motives and skill-building motives were no longer significant predictors of changes in gambling behaviour, $\beta = -.14$,

$t(116)$ = -1.75, p = .08, β = .09, $t(116)$ = 1.11, p = .27, respectively. Second, gender was a significant predictor of changes in gambling behaviour, β = -.18, $t(116)$ = -2.18, p = .03, with females being more likely to report decreases in gambling behaviour (r = -.28, p = .001).

[2]As part of our preliminary analyses, we assessed whether differences existed between moderate-risk and problem gamblers on any of our measured motivation variables. Results showed problem gamblers were more likely to report playing social casino games for social motives (M = 2.30, SD = .89) than were moderate-risk gamblers (M = 2.00, SD = .82), $t(138)$ = -2.10, p = .04. Problem gamblers were also more likely to report playing social casino games for coping motives (M = 2.68, SD = .73) than were moderate-risk gamblers (M = 1.98, SD = .72), $t(138)$ = -5.70, p $<$.001. Lastly, problem gamblers expressed a desire to play social casino games in order to reduce their craving to gamble (M = 4.40, SD = 1.25) more than moderate-risk gamblers did (M = 3.74, SD = 1.38), $t(136)$ = -2.93, p = .004. Because the pattern of results remains the same whether these two categories are analyzed together or apart, we collapsed the categories across moderate-risk and problem gamblers for purposes of power.

[3]The pattern of results was unchanged when gender and age were removed from the multiple regression.

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