

Susceptibility to addictive behaviour in online and traditional poker playing environments

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Background and aims: With the growing number of virtual sites and easy access to them, as well as increasing popularity of the game, online poker could foster addiction. The aim of the current inquiry was to gauge susceptibility to behavioural addiction in online and traditional poker players. *Methods:* Ninety-six online poker players and 35 traditional players were tested on the basis of the “Components model” for addiction (Griffiths, 2005). Using a Likert scale, ratings on six components were examined: *salience, conflict, mood modification, withdrawal symptoms, tolerance, and relapse.* *Results:* The traditional players scored higher than online players on measures of conflict, mood modification, and relapse. While none of the traditional players were at risk, the majority of them (94.7%) were symptomatic. Two online players were at risk, 67.7% symptomatic and 30.2% asymptomatic. No significant correlations have emerged between the amount and history of poker playing and the addiction scores. *Conclusions:* The current findings suggest that most traditional players are prone to behavioural addiction while the majority of the online players are also symptomatic.

Keywords: conflict, gambling, Internet, mood modification, relapse

INTRODUCTION

At the end of the past century (1998–1999) already 0.64% of the Australian population have gambled on the Internet (Productivity Commission, 1999). This figure mounted to about 1.5% when considering those Australians who had access to Internet at that time (Australian Bureau of Statistics, 1999). Early in the new millennium Internet gambling has mounted in popularity (Griffiths, 2001) and continued to grow substantially in following years (Wardle et al., 2007). Indeed, 10 years ago, Griffiths found that only about 1% of Internet users in Great Britain had ever gambled on the Internet. No problematic gambling behaviour was observed among those individuals. A few years later the British Gambling Prevalence Survey (Wardle et al., 2007) revealed that 6% of the population had used the Internet to gamble in 2006. In the same period the prevalence of Internet gambling in Canada was lower being about 2.1%, which is, nevertheless, a major increase from 2004, when it was under 1% (Wood & Williams, 2009). Around the same period, in Norway 26.6% of identified cases of problematic gambling were connected to Internet gambling (Bakken, Gøtestam, Grawe, Wenzel & Oren, 2009). Further, while in 2001 no problematic gambling was noted among those who have used the Internet for gambling (Griffiths, 2001), in a more recent examination of the British Gambling Prevalence Survey results, Griffiths, Wardle, Orford, Sproston and Erens (2009) found that the prevalence of problematic gambling was significantly higher among Internet gamblers than among non-Internet gamblers. The authors caution that the Internet may be an environment that could foster problematic gambling behaviour to a larger extent than in the traditional gambling environments.

One popular form of online gambling is online poker. It is one of the fastest growing forms of online gambling (Griffiths, Parke, Wood & Parke, 2006). In 2008 online poker represented 18% of all Internet gambling revenues in the European Union (European Commission, 2011). There was noticeable variability in this index among various member states. For example, in Hungary the figure accounted for 29%, in UK for 19%, in Sweden for 26%, and in Estonia for 46% of all the online gross gambling revenues (European Commission, 2011). It is believed that such figures will keep rising because poker is broadcasted through various media, people can learn the game for free, players can get involved at low cost or even for free, relatively easy access to the game and instant winning opportunities, as well as the endorsement of the game by role models and celebrities (Griffiths et al., 2006; Wood, Griffiths & Parke, 2007).

To date, few empirical inquiries have examined online poker (Griffiths, Parke, Wood & Rigbye, 2010). Based on the results of an online survey, Griffiths et al. (2010) have found that 18% of 422 respondents could be classified as “probable pathological gamblers” in light of the DSM-IV criteria for pathological gambling. Similarly Hopley and Nicki (2010) that 9% out of 179 volunteer online poker players could be classified as problem gamblers. Based on such findings it is reasonable to speculate that online poker players differ from the traditional or face-to-face players. In-

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deed, a study from Canada has shown that 8.2% of poker players were moderate-risk gamblers, while only 6.0% were problem gamblers (Market Quest Research Group Inc., 2005). According to an inquiry form in the UK, the profile of the average online gambler appears to differ from that of the traditional casino or betting shop player and tends to depict the general profile of the average Internet users who are young and educated (Department for Culture, Media and Sports, 2006).

In this exploratory study online poker players were contrasted with traditional players on the basis of the “Components model” of behavioural addiction (Griffiths, 2005), which states that all addictions consist of six distinct and unique components: salience, conflict, tolerance, mood modification, withdrawal, and relapse. Salience is noted when the activity becomes the most important in the person’s life and dominates her/his thinking, feeling and behaviour. Conflict occurs in two ways as a consequence of exaggerated activity (poker playing): On one hand, there is conflict that surfaces between the person and her/his social environment (interpersonal conflict). On the other hand, there is conflict that breaks out within the individual as a result of guilt for spending time, money, and not fulfilling other essential life-activities (intra-psycho conflict). Tolerance is the progressive need to increase the amount of play or betting to experience continued satisfactory reward. Mood modification is the satisfaction stemming from engaging in gambling (poker). Withdrawal symptoms are unpleasant physical and psychological emotions that occur when poker playing is not possible (access to Internet, power failure, etc.). Relapse is the tendency for repeated reversions to earlier patterns of behaviour (or poker playing) after shorter or longer periods of abstinence.

In spite of the exploratory nature of the current inquiry, based on the extant literature (Griffiths et al., 2009; Hopley & Nicki, 2010), it was hypothesized that online players would score higher on most of the six studied components of addiction because of anonymity, instant and easy access, online funds, detachment, perceived value of local or global competition, and the already reported high incidence of online gambling (Wardle et al., 2007).

METHODS

Participants

Online participants were recruited from Hungary’s two most popular poker websites, containing interactive forums: www.onlinepokerhu.com, www.pokerakademia.com. Completion of the questions also implied consent for participation. Confidential handling of personal data was promised and assured by the researchers. The conditions of participation were: 18 years of age or above, disclosure of the e-mail address, as well as age and gender, and the answering of all questions. If these conditions were not satisfied, the returned form was not taken into consideration. Responses from 96 volunteers met the criteria for inclusion in the study. The mean age was 28.3 ($SD = 8.2$) years of the online participants and seven of them were women. These respondents reported playing poker regularly for an average of 3.9 ($SD =$

1.7) years, and they played on the average 18.5 ($SD = 12.1$) hours per week.

The offline or traditional (face-to-face) poker players were recruited via systematic randomization by asking every second member entering a large poker club if she/he would take part in the study. The criteria for participation were the same as for online players, with the exception that the disclosure of the e-mail address was not mandatory. Due to the fact that only a small fraction of the approached individuals were keen to participate, only 35 eligible poker players were recruited. Their mean age was 32.9 ($SD = 10.8$) years, nine of them were women. They reported playing poker regularly for an average of 3.3 ($SD = 2.2$) years, and they played on the average 17.9 ($SD = 9.4$) hours per week.

Materials

In addition to demographic questions pertaining to gender, history of playing, and estimated weekly hours of playing, the six components of behavioural addictions (based on Griffiths, 2005) were rated on a 5-point Likert scale that ranged from *totally disagree* (1) to *totally agree* (5). The questions were:¹ 1) Poker playing is most important for me (salience); 2) I have experienced conflicts as a result of my play (conflict); 3) I play poker to change my mood (i.e. to get a buzz–mood modification); 4) Over time I have increased the amount I play (tolerance); 5) If I cannot play when I want, I feel moody and irritable; and 6) If I stop or play less for a while, later I start playing again and I end up playing as much as, or even more than before (relapse). Apart from component-scores, an overall addiction score was also calculated as based on Terry, Szabo and Griffiths (2004) and Demetrovics and Kurimay (2008). In this way, those scoring above 80% (or 24/30) would “agree” or “totally agree” with all the six statements and could be considered “at risk”. Individuals scoring above 50% but under 80% (13/30 – 23/30) could be considered as symptomatic, and those scoring under 50% (12/30 or less) as asymptomatic.

Procedure

Both online and offline participants have answered the questions in less than five minutes. Online responses were collected via the Internet and saved in Excel files, while offline responses were gathered using the traditional paper and pencil method. Data from both sources were recorded into an SPSS (v. 13) data-file for subsequent statistical analyses. In the course of this research all the necessary steps were undertaken to follow the directives of the Helsinki Declaration (World Medical Association, 2008) as well as the recent Code of Human Research Ethics (The British Psychological Society, 2010).

RESULTS

Initially the total score of addiction was calculated for each individual by summing up the rating on the six components of addiction. Subsequently, these scores were correlated with the history of playing poker (years) and with the subjectively estimated time per week (hours) spent with poker playing. None of these correlations were statistically significant. Therefore these variables were not considered as covariates in the subsequent analyses.

¹ Equivalent to the Hungarian semantic meaning.

Table 1. Means and standard deviations (*SD*) and results of the univariate analyses of variance for the group-differences in the six outcome measures (components) on the basis of the Components model of behavioural addiction. Effect sizes (Cohen's *d* – Cohen, 1992) are presented for statistically significant differences

	Online	Traditional	<i>F</i>	<i>p</i>	<i>d</i>
Saliency	2.97 (1.20)	2.89 (1.21)	0.12	NS*	–
Conflict	2.10 (1.01)	3.09 (1.01)	24.71	.001	.98
Mood modification	2.15 (1.07)	2.54 (0.95)	3.76	.055	.38
Tolerance	2.75 (1.17)	2.80 (1.16)	0.05	NS	–
Withdrawal	2.16 (1.07)	2.43 (1.17)	1.58	NS	–
Relapse	2.47 (1.18)	2.91 (1.07)	3.85	.052	.38

* NS = Not significant.

To examine the possible differences in the six components of addiction between online and the traditional poker players, a two (groups) by six (components) multivariate analysis of variance (MANOVA) was performed. This test yielded a statistically significant multivariate effect for group (Wilks' Lambda = .804, $F(6,124) = 5.04$, $p < .001$, $\eta^2 = .196$). The follow-up test showed that the multivariate effect was due to differences in three components out of six between online and offline players. Specifically, the traditional players scored higher than the online players on conflict ($F(1,129) = 24.71$, $p < .001$, $\eta^2 = .159$), mood modification ($F(1,129) = 3.76$, $p < .055$, $\eta^2 = .028$), and on relapse ($F(1,129) = 3.85$, $p < .052$, $\eta^2 = .029$). The last two results, however, may be considered as borderline or only marginally significant (Table 1).

To examine whether the two groups differed in past history (or experience) of poker playing and estimated amount of weekly time spent with playing the game, Mann–Whitney test was used, because the assumption of homogeneity of variance was violated in these two variables. While no difference in the estimated weekly hours of playing was found, the online players reported a longer past history of playing poker than offline players (mean ranks 70.7 vs. 50.4, $Z = -2.9$, $p < .004$).

Examination of the behavioural addiction scores in the two groups showed that among the online players 30.2% were “asymptomatic”, 67.7% “symptomatic”, and 2.1% “at risk” of addiction based on Terry et al.'s (2004) classification. In the offline poker group there were no “at risk” scores. Most of the participants fell in the “symptomatic” category (94.3%) and only two of them (5.7%) could be classed as “asymptomatic”. The traditional poker group scored statistically significantly higher on behavioural addiction than the online players (means: 16.7 ($SD = 3.3$) and 14.6 ($SD = 4.1$) respectively, $F(1,129) = 7.2$, $p < .008$, Cohen's $d = 0.56$).

DISCUSSION

Negating the hypothesis, traditional casino or poker-house players reported stronger symptoms of some common components of behavioural addictions (i.e. conflict, relapse, and mood modification), as well as greater overall scores of addiction than online players. A study by Cotte and Latour (2009) has revealed several differences between online and the traditional (casino) gamblers. The two main differences were the perceptions of social connectedness and anonymity. Traditional poker involves a great deal of social interaction and three dimensional body-language communication while Internet poker does not. The former group invests

travel time, and extra effort to be part of that interaction, which for them is part of the game. On the other hand, online players, apart from the comfort of joining the game from home, may also avoid social interaction by playing on the Internet. Plainly said, many online players would not go to a casino or poker playroom, whereas many traditional players would not play online (Cotte & Latour, 2009). The feelings and emotions in traditional gambling are also more vivid and more intense than in online games. The sensory experiences, like touching or feeling the cards with the hands, could also contribute to heightened experiences as pointed out by Cotte and Latour. Consequently, several aspects of the poker playing environments could justify the stronger symptoms as well as the larger overall scores of addiction in traditional poker players in contrast to online poker.

In this inquiry, the overall scores of behavioural addictions were larger in the group playing poker in the traditional way in comparison to the Internet players. However, it should be pointed out that the effect size was medium, implying a moderately meaningful difference. Further, the results contrasting the components of addiction showed that conflict was the only symptom (out of six in the Components model) that could meaningfully differentiate the two groups as reflected by the large effect size. The differences in relapse and mood modification have hardly reached statistical significance and the corresponding effect sizes were too small to imply even moderately meaningful effects. While no cases that could be classified “at risk” were found among traditional players, two online players have reached this threshold. To date the information about online poker players is limited. More than a decade ago it was predicted that Internet-based gambling could become addictive (King & Barak, 1999). Ladd and Petry (2002) have suggested that online gamblers appear to be more problematic than traditional or casino gamblers. Griffiths et al. (2009) have confirmed their conjecture.

The current work, in spite of greater addiction and conflict scores disclosed for the traditional poker players, does not contradict the findings from the literature with gamblers, in general, as most (nearly 68%) of the online players were “symptomatic”, and two of them were (2.1%) were “at risk”. In addition, Internet players had a longer history of playing than offline players. The seemingly incongruent results, that traditional poker players are more susceptible to problematic behaviour than online players in contrast to the opposite results reported in the literature with gamblers, in general, may be attributable to at least two factors. First, to date, no specific information is available on poker players, because there are no studies comparing online and offline poker players and their susceptibility to addictive behaviour. Second, nearly one-third (30.2%) of the players were “asymptomatic” among the online players. It is suggested that these players, may represent a different category of individuals. They may be the casual players who play for fun or who may rely on free-rolls while investing little in the game. This type of player may be less committed to the game, who in the current study did not exist in the traditional group. Indeed, Wood and Griffiths (2008) differentiated between casual and professional players in a qualitative report examining Swedish poker players.

Unfortunately, the way in which “asymptomatic” players may differ from the rest is only speculative, but future in-

vestigations should examine the differences between “asymptomatic” and “symptomatic” (as well as “at risk”) individuals by examining several variables, like reason for playing, amount of risk taken during the game, frequency, duration, and the intensity of emotional involvement associated with the game, and form of involvement (scheduled or opportunistic) in the game.

It is worth noting that in spite of the greater overall addiction scores found in traditional players, the difference could be largely attributed to the “conflict” aspect of the six common components of addiction. While there is no documentation about this issue in the literature, it is evident that online gambling does not require displacement and it could be performed when family members are away from home, sleep, or preoccupy themselves with other activities. In the case of single people, online gambling could be scheduled in harmony with one’s social life and the friends’ leisure time, at least to some extent. Traditional gambling, on the other hand, requires displacement and absence from home, endorsement by friends and family, and adaptation to the opening hours of the playing environment. Therefore, it is obvious that traditional gambling may trigger conflict, which could be avoided – at least to some extent – in the flexible online environment.

The behavioural addiction scores in the current study did not correlate with the weekly time played or the history of poker playing. These findings agree with Griffiths et al. (2010) who also found that length of time playing did not correlate with either score on DSM-IV problem gambling criteria or perceived skill. It appears that addiction to poker may be more an issue of intensity of the experience rather than duration or frequency of the experience. Future studies should examine this conjecture more directly.

LIMITATIONS

Some limitations of the study should be noted and addressed in future research. First, numerous traditional (offline) players who were invited to take part in the study have refused to cooperate. This is the principal reason why only 35 participants could be recruited into this group. It is also possible that those individuals who did not cooperate were the *heavier type* of gamblers, who may be self-aware of a gambling problem and attempt to shield it from others. This conjecture remains only tentative, because the authors see no way in examining the real differences between those who do agree to take part in a research and those who do not. The same issue may be a concern with the online poker players too. Who are those who volunteer for the study and who are those who do not? Therefore, the current sampling limitations may limit the generalizability of the findings. Another limitation of the research pertains to the six common symptoms of behavioural addictions, or limited number of variables examined. It is possible that online and offline players differ on wider spectrum of personal, social, as well as psychological/motivational constructs than those examined in the current work.

CONCLUSIONS

In conclusion, the current inquiry reveals that online poker players are less susceptible to behavioural addiction than tra-

ditional players. In spite of claims in the literature, that online gambling may result in problematic behaviours, in the poker the situation could be different. The overall scores of addiction were different between the two groups, but only conflict was the symptom that clearly differentiated them. Mood modification and relapse were marginally different between the two groups.

REFERENCES

- Australian Bureau of Statistics (1999). *Continued growth in Australian internet access – ABS*. Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/mediareleasesbytitle/5D680304DB132329CA2568A900136391?OpenDocument>
- Bakken, I. J., Gøtestam, K. G., Grawe, R. W., Wenzel, H. G. & Oren, A. (2009). Gambling behavior and gambling problems in Norway, 2007. *Scandinavian Journal of Psychology*, 50(4), 333–339.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159.
- Cotte, J. & Latour, K. A. (2009). Blackjack in the kitchen: Understanding online versus casino gambling. *Journal of Consumer Research*, 35(5), 742–758.
- Demetrovics, Zs. & Kurimay, T. (2008). Testvétségfüggőség: a sportolás mint addikció (Exercise dependence: Sport as addiction). *Psychiatria Hungarica*, 23, 129–141.
- Department for Culture, Media and Sports (2006). *A Literature Review and Survey of Statistical Sources on Remote Gambling*. Final Report, RSeconsulting.
- European Commission (2011). *On on-line gambling in the Internal Market*. Commission Staff Working Paper SEC(2011) 321 – Accompanying Document to the Green Paper {COM(2011) 128}. Brussels.
- Griffiths, M. D. (2001). Internet gambling: Preliminary results of the first UK prevalence study. *Journal of Gambling Issues*, 5. Retrieved from http://www.camh.net/egambling/issue5/research/griffiths_article.html
- Griffiths, M. D. (2005). A ‘components’ model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10, 191–197.
- Griffiths, M. D., Parke, A., Wood, R. T. A. & Parke, J. (2006). Internet gambling: An overview of psychosocial impacts. *Gaming Research and Review Journal*, 27(1), 27–39.
- Griffiths, M. D., Parke, J., Wood, R. & Rigby, J. (2010). Online poker gambling in university students: Further findings from an online survey. *International Journal of Mental Health & Addiction*, 8, 82–89.
- Griffiths, M. D., 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.
- Hopley, A. A. B. & Nicki, R. M. (2010). Predictive factors of excessive online poker playing. *CyberPsychology, Behavior, and Social Networking*, 13(4), 379–385.
- King, S. A. & Barak, A. (1999). Compulsive internet gambling: A new form of an old clinical pathology. *CyberPsychology & Behavior*, 2(5), 441–456.
- Ladd, G. T. & Petry, N. M. (2002). Disordered gambling among university-based medical and dental patients: A focus on Internet gambling. *Psychology of Addictive Behaviors*, 16, 76–79.
- Market Quest Research Group Inc. (2005). *Newfoundland and Labrador Gambling Prevalence Study*. St John’s, NL: Department of Health and Community Services.
- Productivity Commission (1999). *Australia’s Gambling Industries*, Report No. 10, AusInfo, Canberra, Vol. 2, p. 18.9.

- Terry, A., Szabo, A. & Griffiths, M. D. (2004). The exercise addiction inventory: A new brief screening tool. *Addiction Research and Theory, 12*, 489–499.
- The British Psychological Society (2010). *Code of Human Research Ethics*. Retrieved from http://www.bps.org.uk/sites/default/files/documents/code_of_human_research_ethics.pdf
- Wardle, H., Sproston, K., Orford, J., Erens, B., Griffiths, M. D., Constantine, R. & Pigott, S. (2007). *British Gambling Prevalence Survey 2007*. UK: National Centre for Social Research.
- Wood, R. T. & Williams, R. J. (2009). *Internet Gambling: Prevalence, Patterns, Problems, and Policy Options*. Final Report prepared for the Ontario Problem Gambling Research Centre, Guelph, Ontario, Canada, January 5, 2009.
- Wood, R. T. A. & Griffiths, M. D. (2008). Why Swedish people play online poker and factors that can increase or decrease trust in poker Web sites: A qualitative investigation. *Journal of Gambling Issues, 21*, 80–97.
- Wood, R. T. A., Griffiths, M. D. & Parke, J. (2007). The acquisition, development, and maintenance of online poker playing in a student sample. *CyberPsychology & Behavior, 10*, 354–361.
- World Medical Association (2008). *World Medical Association Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects*. Retrieved from <http://www.wma.net/en/30publications/10policies/b3/17c.pdf>