LIVING IN THE DIGITAL AGE

SELF-PRESENTATION, NETWORKING, PLAYING, AND PARTICIPATING IN POLITICS

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The Risks of Online Gambling for Younger Males: Insights from Czech National Surveys

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ABSTRACT
Compared to offline gambling forms, online gambling has been hypothesized to lead to a heightened risk of developing gambling pathology. Suggestions about who the risks apply to have varied. In light of the finding that online gambling and the associated financial difficulties are reported mostly by younger males, some hypotheses identify younger males as an at-risk group. An alternative possibility is that younger males simply display a trend that will emerge population-wide as online gambling proliferates. In this chapter, hypotheses about the population-wide and young-male-specific risks of online gambling are assessed using data from three nationwide Czech surveys. The hypotheses relating specifically to young men are, first, that young men are greater risk-takers who enjoy "practicing" in anonymous environments, and, second, that young men are more prone to overspending as a result of losing track of time during play.

Keywords
online gambling, pathological gambling, gender, risk-taking, dissociation

INTRODUCTION

In countries with legalized gambling venues, serious gambling debts, inability to stop gambling, and resultant relationship problems are reported by one to two percent of the general population (e.g., Australian Productivity Commission, 2010; Bakken et al., 2009; Wardle et al., 2007). This prevalence rate for pathological gambling is much higher than that for heroin addiction, for example (e.g., King et al., 2014).

The causes of pathological gambling have been discussed widely in the psychological and sociological literature (e.g., Aasved, 2003; Sharpe, 2002).

Among the suggestions is that different types of gambling appeal to people with different characteristics. For example, slot machines have been found to be particularly appealing to individuals seeking to lower their emotional arousal and thereby escape life problems. In contrast, horse race betting has been found to appeal to individuals seeking to raise arousal levels to escape boredom (Cocco, Sharpe, & Blaszczynski, 1995). A further suggestion is that different types of gambling involve different amounts of lifetime debt, with card games requiring more concentration and, therefore, involving more moderate spending overall compared to slot machines (Petry, 2003).

Online gambling, an increasingly prominent gambling platform, incorporates many types of gambling, from slot machines to poker. However, in the gambling literature, the question has been raised as to whether online gambling can itself be considered a "type" of gambling that hastens the development of gambling problems (Griffiths et al., 2007). Qualitative and survey-based findings show that online gambling participation and online-gambling-related pathologies are reported mostly by younger males (Griffiths et al., 2009; Wood & Williams, 2011) to whom the medium appeals because of its accessibility and anonymity (McCormack & Griffiths, 2010). Do these findings imply that, because of its accessibility and anonymity, online gambling causes gambling problems to develop particularly quickly? This would account for why gambling problems are observed at an early age among males, a group more likely to engage in gambling (e.g., Abbott, Romild, & Volberg, 2013; Wardle et al., 2007). An alternative interpretation is that gambling problems develop at equal rates online and offline. Under this view, the higher prevalence of online-gambling-related problems in younger males simply reflects the fact that young people are coming to rely on the internet for all sorts of activities. Since males are more likely to engage in gambling, their gambling practices display a visible trend towards becoming more internet-based. A third possibility is that online gambling poses a risk for younger males specifically, or even subgroups within the "younger male" category.

This chapter offers a preliminary test of these competing interpretations using data from a series of large Czech surveys on gambling. The questions and participant profiles of these surveys are described in the first section. One survey, *The National Survey on Substance Use 2012,* sampled approximately 2,000 people whose ages, education level, and other characteristics were distributed similarly to the general adult Czech population (Mravčík et al., 2014). Respondents completed the gambling section of the survey if they had gambled at least once in the preceding 12 months. Among the gambling-

related questions were the Problem Gambling Severity Index (PGSI) consisting of nine questions (Ferris & Wynne, 2001), a question about which online and offline gambling activities the respondent had attempted, and a question about the frequency with which the respondent gambled on average (from "less often than once a month" to "every day or almost every day").

As one would expect intuitively, past studies have found pathological gambling to be associated with a higher reported frequency of play, and also with play on a wider variety of gambling types (e.g., slot machines and other casino games as opposed to just slot machines; Fisher, 1993; Welte et al., 2004). If online gambling rapidly leads to an increased probability of pathological gambling, as suggested by the first interpretation above, respondents' pathological gambling scores (scores on the PGSI) should relate not only to the frequency and variety of gambling activity, but also to whether at least one of the gambling activities was performed online. The full results of this analysis are described in the second section of the chapter.

The third interpretation above suggests that any observed relationship between online gambling and pathological gambling could be due to the effect of online gambling on a certain subset of the population. If the group particularly endangered by online gambling is relatively small, the relationship could be invisible at population level while still being of theoretical and practical significance. Motivated by this goal of identifying potential group-specific effects, we first examined the sociodemographic profile of those who reported online gambling as their main source of problems in a Czech 2013 nation-wide survey of pathological gamblers in treatment. Of the 229 people surveyed, 31 reported online gambling as their main source of problems. As the third section of the chapter describes in more detail, we found that online pathological gamblers were younger than the rest of the sample, but no different in socioeconomic status. All but one were male, which would have been a noteworthy finding had there not been only 15 females in the entire sample.

We proceeded to test two hypotheses regarding the dangers of online gambling for younger males as a group. The first hypothesis is that younger males, a risk-seeking segment of the population, spend even more money in the anonymous, easily accessible online environment (Byrnes, Miller, & Schafer, 1999; Rolison et al., 2013). It has been suggested that the anonymity feature makes online environments particularly dangerous for risk-seekers who wish to "practice" without embarrassment over their initial and ongoing losses (McCormack & Griffiths, 2012). The *National Survey on Substance Use 2012* provides data

relevant to this hypothesis. We examined whether younger males with online experience reported greater monthly gambling expenditure than all other respondents.

Our next analysis (Section 5) explored some aspects of the hypothesis that online gambling poses risks to young males because of its parallels with video gaming. According to this hypothesis, video games are a source of "dissociation" – a feeling of being so engrossed in an activity that the sense of time and place is lost (Jacobs, 2006). Brain imaging research has suggested that males are drawn to video games and structurally similar activities because they have greater sensitivity to reward in learning tasks (Hoeft et al., 2008). This higher sensitivity potentially enables males to more acutely lose track of time while playing, contributing to their enjoyment (Wood, Griffiths, & Parke, 2007). Numerous studies have established that males play video games more regularly and for longer periods than females (Brockmyer et al., 2009; Hoeft et al., 2008). Arguably, online gambling activities result in the same dissociation and time investment, since they have many features in common with video games. Indeed, it has been argued that improvements in digital technology and internet speed have caused the boundaries between gambling games and video games to blur (King, Delfabbro, & Griffiths, 2010; Wood, Gupta, Derevensky, & Griffiths, 2004). The popular computer card game, *Hearthstone*, is a case in point. The game's 400 cards can be collected over the course of play, but players also have the option of purchasing some cards for real money. In online gambling, prolonged periods of play are highly likely to be accompanied by financial losses.

A prediction that follows from the described hypothesis is that males who gamble online should report higher levels of dissociation. Relevant data could be found in a 2013 survey of approximately 1,800 people representative of the Czech adult population (Mravčík et al., 2014). In this survey, we examined the relationship between gender, online gambling involvement, and scores on a five-item dissociation measure (Jacobs, 2006).

Thus, after introducing the Czech survey data, we present an analysis addressing the broad question of whether online gambling is more dangerous than offline gambling. In three subsequent analyses, we consider whether the danger is perhaps specific to subsets of the population. First, we attempt to identify the subset of interest, concluding that people with online gambling problems are more likely to be younger, and possibly also male. We then examine risk-taking and dissociation experiences, two reasons why younger males might be at risk from online gambling, more so than from gambling offline.

SURVEY DETAILS

National Survey on Substance Use (2012)

The *National Survey on Substance Use 2012* is a nationally representative survey of people aged 15–64 living in the Czech Republic's 14 administrative regions. It was conducted by the Czech National Monitoring Centre for Drugs and Addiction (NMCDA) in cooperation with a sociological research agency. The sample (N=2,134) was generated using multistage cluster sampling, and matched the Czech population of 15–64 year-olds on gender, age, level of education, and region of residence (e.g., de Vaus, 2002). Initially, 6,210 households consented to providing details about their demographic composition. On the basis of this information, individuals meeting the inclusion criteria were invited to complete the full survey. Sixty-two percent of invited households agreed and the surveys were then completed over the course of two months. Non-response after the selection of individual household members was 14%. The surveys were completed with an interviewer, who had a paper copy of the questionnaire. Further details regarding sampling are documented in a Czech journal paper and a government report (Chomynová, 2013; Mravčík et al., 2014).

While most of the survey's 204 questions related to the use of licit and illicit drugs, a set of 24 gambling-related questions was included alongside seven demographic questions. Table 1 summarizes the gambling-related and demographic questions used in this chapter's analyses. Notably, respondents answered, in relation to a list of gambling types available in the Czech Republic (as in Table 1, Question 1), whether they had engaged in these activities in their lifetime, over the preceding 12 months, or in the past 30 days. Approximately 40% of participants (N = 897) reported never gambling on any activity. We analyzed the responses of participants who reported playing at least once in the preceding 12 months, and not only on lotteries or with friends (N = 206). Of these respondents, 41 reported playing only once. No weights were applied in the analyses[12].

12 Notably, when the relevant analyses in Sections 2 and 4 were conducted on a weighted sample, the results were unchanged.

Table 1
Relevant questions in the National Survey on Substance Use 2012. *Full English translation of the survey is available on request from the authors.*

Gambling-Related Questions	
1	What type of game/s have you played in the last 12 months? *Select all that apply:* slot machines; online slot machines; casino games (e.g., roulette, cards, dice); online betting at registered Czech operators; online betting at other websites; number-based lotteries... I have never played any of the above games
2	Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001) Thinking about the last 12 months... • have you bet more than you could really afford to lose? • have you needed to gamble with larger amounts of money to get the same feeling of excitement? • did you go back another day to try to win back the money you lost? • etc. (nine items total) *Response options:* (0) never, (1) sometimes, (2) most of the time, (3) almost always
3	In the last 12 months, how often have you played any of the games listed above? *Response options:* (1) less than once a month, (2) once a month, (3) several times a month (two to three times), (4) at least once a week (one to two times), (5) several times a week (three to four times), (6) every day or almost every day (five to seven times per week)
4	How much money do you usually spend on gaming/gambling in a month? _____ CZK
Demographic Questions	
5	Gender
6	Year of birth
7	Highest level of education completed: *Select one:* primary; lower secondary (vocational school); higher secondary; higher education (vocational); university
8	What is your own net monthly income? *Select one:* I do not earn an income; less than 5,000 CZK; 5,001–10,000 CZK; 10,001–15,000 CZK; 15,001–20,000 CZK; 20,001–30,000 CZK; more than 30,001 CZK

Survey of Pathological Gamblers in Treatment (2013)

In another survey by the NMCDA, 105 facilities known to be offering treatment for pathological gambling were contacted and invited to inform their clients about the opportunity to participate in a survey. Of the 40 facilities that confirmed they had clients with gambling problems, 27 agreed to disseminate information about the study. Consenting organizations consisted of 13 NGOs, 11 hospitals, two private organizations and a prison. Interviewers from the research group arranged interview times with individual clients after visiting the facilities on nominated days (e.g., when problem gambling support groups were held). Respondents were screened at the beginning of the interview using the lie/bet questionnaire with two questions; one on lying about gambling and one on needing to bet increasing amounts of money (Johnson et al., 1988). At least one of the lie/bet questions had to be answered in the affirmative for the interview to continue. Two hundred twenty-nine responses were obtained, the non-response and exclusion rates remaining unknown. The survey consisted of 61 gambling-related questions and nine demographic questions, of which the questions relevant to this chapter's analyses are summarized in Table 2.

Table 2

Relevant questions in the Survey of Pathological Gamblers in Treatment 2013.

Gambling-Related Questions	
1	Have you played any of the following gambling types? List similar to Table 1, Question 1. *Response options:* every day or almost every day (five to seven times per week); several times a week (three to four times); at least once a week (one to two times); several times a month (two to three times); once a month; less than once a month; never; don't know
2	Which one of the above games (Question 1) do you consider the most problematic for yourself? In other words, which of the games led to the fact that you are seeking professional help now? Select one.
Demographic Questions	
3	Education (at time of entry into treatment): *Select one:* incomplete primary; primary; incomplete secondary; secondary; higher education (vocational); university
4	Monthly income – as in Table 1, Question 8.

5	How would you describe your work / job? *Select one option describing the job that you consider major:* employed; self-employed (sole trader; entrepreneur); employed and at the same time self-employed; pensioner; disability pensioner; student; at home; on maternity or parental leave; unemployed

Citizen Survey: Attitudes Towards the Health Sector and Healthy Lifestyle (2013)

The NMCDA negotiated the inclusion of eight gambling-related questions in a larger population survey on attitudes towards the health sector. Responses were obtained through face-to-face interviews with 1,797 people selected through quota sampling by a market research company to match the Czech population on gender, age, and region of residence (e.g., de Vaus, 2002).

Questions relevant to the present analyses are described in Table 3. It can be seen that separate questions were asked about offline and online gambling activities in the preceding 12 months. For online play, it was possible to indicate that the games were not played for money. The targets of our analysis were 228 people who reported playing for money in any activity other than only online and offline lotteries. As with the *National Survey on Substance Use 2012*, it is noteworthy that a large portion of respondents (1,192; 66%) reported never having gambled for money.

Table 3
Relevant questions in the Citizen Survey 2013.

Gambling-Related Questions	
1	Have you played any of the following in the past 12 months? slot machines and video lottery terminals; casino games; sports and non-sports betting at betting offices; number-based lotteries; etc. *Response options:* yes; no
2	Have you played any of the following on the internet in the past 12 months? sports and non-sports betting; live betting; poker; casino games (roulette, bingo, blackjack); number-based lotteries *Response options:* yes – through websites for which it is first necessary to register at a branch; yes – with no pre-registration; yes, but without real money; no

3	Have you played computer games or video games (on a mobile phone, computer, or other device) in the last 12 months? This includes games of all themes: adventure, racing, combat, puzzle, etc. *Response options:* yes; no
4	*Dissociation scale* (Jacobs, 2006) The following questions are about feelings and experiences associated with playing. We are interested in your experience. • After a session of playing, have you ever felt like you have been in a trance? • When playing, did you ever feel like you had taken on another identity? • When playing, have you ever felt like you were outside yourself – watching yourself playing? • Have you ever experienced a memory blackout for a period when you have been playing? • Have you ever lost all track of time when you have been playing? *Response options:* (0) never, (1) rarely, (2) sometimes, (3) often, (4) every time
Demographic Question	
5	Gender

RISK IN THE POPULATION AS A WHOLE

An emerging question in the psychological and media literatures is whether online gambling poses more risks than offline gambling to anyone who attempts it. We examined the question using data from the *National Survey on Substance Use 2012*. It was reasoned that, if online gambling increases the risk of gambling pathology, any experience with online gambling should be associated with higher levels of gambling pathology after accounting for the effects of gambling frequency and variety.

As preparation, we divided the respondents who gambled on more than lotteries in the preceding year (N = 206) into those who were not at risk of gambling pathology according to the PGSI, and those whose PGSI score implied a risk or presence of gambling pathology. More specifically, as per PGSI scoring instructions (Ferris & Wynne, 2001), we divided participants into those who scored 0 to 2 on the PGSI, and those who scored 3 or higher. These groups contained 158 and 42 people, respectively. Our measure of gambling frequency was based on Table 1, Question 3. Respondents who reported gambling only once in the preceding 12 months were instructed to skip this question, so we

made provisions for them by giving them a score of 0 on the gambling frequency question. Otherwise, as Table 1 indicates, responses ranged from 1 ("Less than once per month") to 6 ("Almost every day"). The mean gambling frequency score in our sample was 2.3 (SD = 1.69). As regards game variety, the number of games selected in response to Table 1, Question 1 ranged from one to six.

Since only 12 people reported playing more than two games, however, we transformed the game variety variable into a variable on which respondents belonged in one of two categories: "one" (N = 158) and "more than one" (N = 48). Experience with online play was also expressed as a binary variable, based on responses to Table 1, Question 1. One hundred and thirteen participants reported no online play in the preceding 12 months, while 93 reported experiences with online slot machines, online betting, or online casino games. Since nine respondents did not answer either the PGSI questions or the playing frequency question[13], our analysis was based on 197 respondents.

The analysis consisted of a hierarchical logistic regression in which PGSI category served as the outcome variable. Predictors were entered into the model one by one: first, playing frequency; then, game variety; and, finally, online experience. Results are presented in Table 4. It can be seen that neither game variety nor online experience accounted for PGSI category membership, once the effects of playing frequency were accounted for in the first step.

Since online gambling can take place at home, it was necessary to check whether play frequency levels related to online gambling experience. A Student independent samples t-test revealed a significant positive relationship between play frequency and gambling experience ($Mean_{Online}$ = 2.9, SD = 1.59; $Mean_{Offline}$ = 1.8, SD = 1.58; $t(195) = 5.04$, $p < .001$). However, when we conducted a hierarchical regression that did not include play frequency, game variety did not have a significant effect in the first step and online experience did not have a significant effect in the second (full results not reported here). Given the relatively small number of people who reported gambling online, all these results must be interpreted with caution. Their implication, however, is that, while online gambling is associated with a higher frequency of play, it does not place all who experience it at additional risk of developing gambling pathology.

13 Six respondents did not answer the PGSI-related questions, and one of these was among four people who provided no answer to the playing frequency question. A different four respondents failed to answer only two items or less on the PGSI; for them, a PGSI score was computed by summing the available responses.

Table 4
Final model of a hierarchical logistic regression in which playing frequency, game variety, and online gambling experience were modeled as predictors of pathological gambling risk (as per PGSI).

Predictor variables	*B*	S.E.	Odds ratio
Playing frequency	.322**	.117	1.381
Game variety (reference: 0)	-.312	.412	.732
Online gambling experience (reference: no)	-.201	.388	.818
Cox and Snell (1989) index of goodness of fit: .06			

** $p < .01$ based on the Wald χ^2 statistic

IDENTIFYING GROUPS AT POTENTIAL RISK: YOUNGER MALES

The above population-level analysis does not rule out the possibility that online gambling holds particular risks only for subgroups in the population. In this section, we identify a subgroup that is potentially at risk. The analysis is based on the results of two recent studies. A 2014 study of Finnish residents involved logistic regressions much like in our previous analysis, albeit predicting pathological gambling status for males and females separately (Nordmyr et al., 2014). For men, pathological gambling status was predicted by online play exclusively and in combination with offline gambling forms. For women, only offline gambling involvement predicted pathology. This suggests, tentatively, that males might be a more at-risk group for any harm caused by online gambling. Meanwhile, a study of Australian residents who had gambled online at least once in the preceding 12 months (Gainsbury et al., 2014) compared pathological gamblers to all others on basic demographic characteristics. Age and socioeconomic status were found to be differentiating factors, with the pathological gamblers being younger and less educated.

The Czech *Survey of Pathological Gamblers in Treatment* enables the identification of at-risk groups in a novel way: by examining the sociodemographic characteristics of people who report online gambling as the source of their gambling pathology. We identified 31 respondents who named an online gambling form as their "most problematic" in Table 2, Question 2. In light of the Finnish and Australian results, the sociodemographic variables of interest were gender, age, and socioeconomic status.

A comparison of the "online" group to all others based on gender proved impossible, since 30 of the 31 online pathological gamblers were male and there were only 15 females total in the sample.

A Student independent samples *t*-test was used to determine whether the online pathological group could be distinguished from all others based on age. Online pathological gamblers were found to be younger ($Mean_{Online}$ = 30.2, *SD* = 9.01; $Mean_{Others}$ = 34.3, *SD* = 9.84; $t(223) = 1.88$, $p = .03$).

Finally, the two groups were compared on socioeconomic status, which we quantified based on questions about education, income, and employment (Table 2, Questions 3, 4, and 5). Participants were classified as being of higher socioeconomic status if they earned an income above 20,000 Czech Crowns (CZK), the average monthly rate in the Czech Republic. Those classified as being of middle socioeconomic level were students, people earning an average income (15–20,000 CZK), or unemployed people and pensioners with complete secondary or post-secondary education. All others were classified as being of lower socioeconomic status. As is apparent in Table 5, which shows the distribution of status across the "offline" and "online" groups, the groups were not significantly different ($\chi^2(2) = 1.38$, $p = .50$).

Table 5

Pathological Gamblers Survey: Socioeconomic status of those reporting online and offline gambling as their most problematic.

Reported most problematic gambling activity	Socioeconomic status (based on reported education, income, and employment)		
	Low	Mid	High
Online	9	16	6
Offline	71	80	47

GREATER RISK-TAKING AMONG YOUNGER MALES?

The preceding section's analysis suggests that younger people and, most likely, younger males, are a sub-population potentially at risk from online gambling. One reason for this might be young males' propensity for risk-taking, which has been noted widely in the psychological literature (e.g., Byrnes, Miller, & Schafer, 1999). Arguably, the "practice" sessions valued by risk-takers in the anonymous online gambling environment can become costly. Using data from the *National Survey on Substance Use*, we assessed whether spending on gambling was higher among young males with gambling experience. Income levels were also taken into account, since people with higher incomes would be expected to spend more in many domains.

In statistical terms, we were interested in whether online gambling experience (as defined in Section 2) "interacted" with sociodemographic profile (being young and male) in predicting reported typical monthly gambling expenditure (Table 1, Question 4). That is, we were interested in whether expenditure was higher for those with online play experience*, especially among younger males*. Younger males were defined as those below the median age of 36.0. As preparation for taking income into account, responses to the question about income (Table 1, Question 8) were collapsed into three categories. People reporting no income or a monthly income of less than 10,000 CZK were classified as "low-income". The "middle-income" category consisted of people earning 10–20,000 CZK per month. People earning over 20,000 CZK were classified as "high-income". Eight respondents in our target group of 206 did not answer the income question. Overall, 190 target respondents answered all the questions relevant to the analysis, and four respondents who reported an extreme expenditure of more than 10,000 CZK were excluded. A table showing expenditure means across online gambling experience (yes or no), sociodemographic profile (young male or not), and income (low, middle, high) categories can be found in Appendix A.

Thus, in our analysis (N = 186), there were three categorical predictors, with expenditure as the outcome variable. A generalized linear model with an assumed negative binomial distribution and log link function was fitted using Type II Sums of Squares in *R Version 3.1.0* (packages: *MASS* and *car;* see References). The generalized linear modeling adjusted for the skewness of the expenditure distribution towards lower values (M = 437.0, SD = 606.12, *Skewness* = 2.96 (SE = .18), *Kurtosis* = 10.42 (SE = .36)). Results are presented in Table 6.

Table 6
The results of generalized linear modeling with reported monthly gambling expenditure as the outcome variable and online gambling experience, being a younger male, and personal income as predictors.

Predictor variables	Wald Chi-Square	df
Online gambling experience	12.77***	1
Sociodemographics: younger male or other	3.20	1
Income	16.94***	2
Interaction between online gambling and sociodemographics	6.04**	1
Interaction between online gambling and income	4.44	2
Interaction between sociodemographics and income	4.12	2
Three-way interaction	0.52	2

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

The observed two-way interaction between sociodemographics and online experience is consistent with the risk-taking hypothesis. That is, the results, combined with the mean expenditure values in Appendix A, indicate that younger males spend more than others online, regardless of their income. Independently of this effect, higher expenditure was also observed among all people with higher income, as well as among those with online experience.

While our results can be considered to reflect greater risk-taking by young males in anonymous online environments, it must be noted that absolute risk-taking levels among respondents were not high. Following the exclusion of four respondents who reported spending between 10–50,000 CZK, the maximum reported monthly expenditure in this analysis was 5,000 CZK (approximately US$210).

GREATER DISSOCIATION AMONG YOUNGER MALES?

After finding support for the proposal that online anonymity encourages higher spending among risk-seeking younger males, we turn to another possible online-gambling-related risk for younger males: the opportunity for dissociation. As discussed in the Introduction, dissociation involves losing track of time and entering a trancelike state. In qualitative studies of video gaming, the dissociative state has been described by players as a rewarding experience (Wood, Griffiths, & Parke, 2007). A brain imaging study (Hoeft

et al., 2008) has, further, suggested that males are more likely than females to become engrossed in problem-solving and achieve dissociation as a result. Data from the 2013 Czech *Citizen Survey* allows us to test the hypothesis that males achieve higher levels of dissociation than other groups during online gambling, just as they might with video games. Unlike offline gambling, online gambling can be engaged in at home, where long hours of play are possible.

Dissociation was operationalized as the sum of responses to Table 3, Question 4. Gambling experience was defined as experience in play for real money on any activity except lotteries listed in Table 3, Questions 1 and 2. Alongside gender (Table 3, Question 5), the analysis also took into account video gaming experience, where experience was reflected in an answer of "yes" to Table 3, Question 3. All respondents who had gambled at least once in the preceding 12 months and not only on lotteries ($N = 228$) provided complete data on these measures.

In our analysis, dissociation score was the outcome variable in a generalized linear model (negative binomial distribution, log link), that provided some correction for skew in the dissociation score distribution ($M = 2.9$, $SD = 3.49$, *Skewness* = 1.80 ($SE = .16$), *Kurtosis* = 4.11 ($SE = .32$)). There were three categorical predictors: online gambling experience (absent or present), video gaming experience (absent or present), and gender. Appendix B displays the mean dissociation across levels of the predictor variables and Table 7 shows the generalized linear modeling results with Type II Sums of Squares.

Table 7

The results of generalized linear modeling with dissociation score as the outcome variable and online gambling experience, video gaming experience, and gender as predictors.

	Wald Chi-Square	df
Gender	0.25	1
Video gaming experience	10.17**	1
Online gambling experience	0.36	1
Interaction between gender and video gaming	0.54	1
Interaction between gender and online gambling	0.54	1
Interaction between video gaming and online gambling	5.87*	1
Interaction between all three predictors	3.77*	1

** $p < .01$

* $p < .05$

It can be seen from Table 7 and the table in Appendix B that increased dissociation was related to the presence of video gaming experience and to video gaming experience in combination with online gambling. In relation to our main hypothesis of greater dissociation among young males gambling online, we observed a significant interaction between all three of the model's predictors. Inspection of the means in Appendix B suggests that males with both types of online experience – gaming and gambling – reported the highest levels of dissociation. Thus, our results point to dissociation-proneness as another characteristic of young males that potentially renders them vulnerable to risks from online gambling. To fully test this hypothesis, the connection between sociodemographic profile, dissociation, and gambling pathology or expenditure, needs to be demonstrated within a single study.

CONCLUSION

Our results suggest that online gambling is a novel gambling form that might be particularly dangerous for young males. The trend is not so strong that online gambling is associated with increased gambling pathology in the general population. However, the *Czech National Service on Substance Use* did reveal that online activities attract more frequent play and greater spending by high income earners. Further analyses suggested that young males contribute disproportionately to this expenditure, which is consistent with the broader hypothesis that the anonymity of online gambling encourages experimentation with risk in this particularly risk-seeking segment of the population. In another survey, young males reported greater levels of dissociation when combining online gambling with video gaming. Thus, we observed preliminary evidence for two mechanisms by which online gambling might predispose younger men to pathological gambling: appeal to this group's risk-taking tendencies, and encouragement of dissociation.

The datasets available to us were unique in terms of their recency, appropriateness for a variety of hypothesis tests, and cultural consistency. Unfortunately, their content and size did not enable us to identify other groups potentially at risk of online-gambling-related pathology. These might include poker players (Wood, Griffiths, & Parke, 2007), video gamers who invest money into play, people generally high in dissociation-proneness (e.g., Kihlstrom, Gliskey, & Angiulo, 1994), and people engaging in live online betting (Gray, LaPlante, & Shaffer, 2012). The well-being of these groups requires extensive research as gambling and gaming acquire digital platforms and converge in offering real monetary rewards.

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APPENDIX A

Typical monthly gambling expenditure as a function of online gambling experience, being a younger male, and personal income: Descriptive statistics

Online gambling experience	Young male	Income	*M*	*SD*	*N*
No	No	Low (below 10,000 CZK)	116.9	147.23	9
		Middle (10,000 to 20,000 CZK)	471.3	593.60	23
		High (over 20,000 CZK)	422.8	387.50	16
	Yes	Low	150.0	227.43	19
		Middle	368.2	331.92	19
		High	354.6	562.01	13
Yes	No	Low	169.8	113.77	10
		Middle	438.7	529.96	15
		High	438.9	261.94	9
	Yes	Low	675.0	1049.69	18
		Middle	609.1	828.68	22
		High	800.0	738.24	13

APPENDIX B

Dissociation score as a function of online gambling experience, video gaming experience, and gender: Descriptive statistics

Online gambling experience	Video gaming experience	Gender	*M*	*SD*	*N*
No	No	Male	2.9	5.57	25
		Female	2.0	3.19	11
	Yes	Male	2.9	2.70	42
		Female	3.4	3.28	16
Yes	No	Male	0.9	1.73	27
		Female	2.3	4.31	13
	Yes	Male	3.7	3.34	75
		Female	3.3	3.00	19