

Gambling and Problem Behavior Among 14- to 16-Year-Old Boys and Girls in Finland

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Abstract

The aim of this study is to examine the associations between problem behavior and gambling frequency among eighth- and ninth-grade boys and girls ($N = 101,167$). Data were obtained from the cross-sectional School Health Promotion Study. Outcome measures were adolescents' truancy, bullying, delinquency, and substance use. Polychotomous logistic regression analyses were used to study the relationship between gambling frequency and risk behaviors in a total sample, as well as separately for boys and girls. In 2010, 62% of the adolescents had gambled during the previous year, and in 2011, 61% of the adolescents had done so. Engaging in different levels of truancy, bullying, delinquency, and substance abuse were associated with higher risks for frequent gambling. Similar patterns of associations were found among boys and girls. Adolescents who engaged in gambling on a daily or weekly basis were the most vulnerable group for problem behavior. However, even infrequent gambling was associated with different problem behaviors.

Keywords: gambling, adolescence, problem behavior

Résumé

Cette étude avait pour objectif d'examiner les liens entre les comportements problématiques et la fréquence des activités de jeu compulsif chez les garçons et les filles de 8e et 9e année secondaire ($N=101\ 167$). Des données ont été tirées d'une étude transversale de promotion de la santé en milieu scolaire (School Health Promotion Study). Les absences injustifiées à l'école, l'intimidation, la délinquance et la consommation de substances constituaient les points de mesures de résultats. Des analyses de régression logistique polychotomique ont été réalisées dans un échantillonnage total et de façon distincte chez les garçons et les filles afin de cerner le lien entre la fréquence des activités de jeu de hasard et les comportements à risque. En 2010, 62 % des adolescents avaient participé à des jeux de hasard au cours de l'année précédente. En 2011, ce chiffre était de 61 %. Un lien a été établi entre

l'adoption, à différents degrés, de comportements d'absentéisme injustifié, d'intimidation, de délinquance et de consommation de substances, et l'augmentation du risque de jeu compulsif. Des schémas d'associations semblables ont été relevés chez les garçons et les filles. Les adolescents qui s'adonnaient aux jeux de hasard de façon quotidienne ou hebdomadaire constituaient le groupe le plus à risque de développer des comportements problématiques.

Introduction

Adolescents today are exposed to gambling much earlier than previous generations. Large numbers of different kinds of gambling games are available. These games, such as bingo, lotteries, and casino games, have also made their way into the Internet, providing youth with multiple opportunities to gamble (Potenza et al., 2011). It has been noted that increased availability of gambling is associated not only with more gambling, but also with more gambling-related problems (Hansen & Rossow, 2008; Productivity Commission, 1999).

Gambling often starts at an early age (Gupta & Derevensky, 1997; Rahman et al., 2012). Early onset of gambling can be associated with a more severe gambling profile (Rahman et al., 2012). Typically, the progression from problem-free gambling to problem gambling is rapid for adolescents (Gupta & Derevensky, 1998). Moreover, when compared with adult populations, adolescents are more likely to experience gambling problems (National Gambling Impact Study Commission, 1999; Shaffer, Hall, & Vander Bilt, 1999). It is also hard for adolescents to recognize when gambling becomes problematic or to access mental health professionals for assistance (Griffiths, 2001; Hardoon, Derevensky, & Gupta, 2003; Splevins, Mireskandari, Clayton, & Blaszczyński, 2010).

Although in many societies gambling is generally forbidden for youth younger than 18 years of age, it is a common activity among them. Gambling prevalence studies from Europe (Molde, Pallesen, Bartone, Hystad, & Johnsen, 2009; Luder, Berchtold, Akre, Michaud, & Suris, 2010; Ólason, Skarphedinsson, Jonsdottir, Mikaelsson, & Gretarsson, 2006; Skokauskas & Satkeviciute, 2007), Australia (Splevins et al., 2010), the United States, and Canada (Jacobs, 2000) suggest that 50% to 80% of youth have gambled during the previous year. In Finland, the minimum legal age for gambling was 15 years until the age limit was set to 18 years in October 2010. After a transition period, the new age limit was also applied to slot machines in July 2011. Before July 2011, the prevalence of past-year gambling among adolescents (aged 15 to 17 years) in Finland was 47% (Turja, Halme, Mervola, Järvinen-Tassopoulos, & Ronkainen, 2012).

Adolescence can be a period of experimenting and engaging in risk behaviors (Brener & Collins, 1998): These behaviors are defined as actions that may have a negative influence on an adolescent's life, health, and well-being (Jessor, 1998). On the other hand, risk behavior can manifest as problem behavior in which youth engage in an action that is socially defined as a source of concern or as undesirable by the social and/or legal norms. Different problem behaviors can accumulate: As one form of adolescent problem behavior increases, the likelihood of other problem behavior also increases. This phenomenon is referred as the problem behavior syndrome (Jessor, Donovan, & Costa, 1991). These links between different problem behaviors may be harmful because of their negative influence on an adolescent's growth, life course, and overall health.

Some studies have suggested that gambling is a form of deviant behavior (Barnes, Welte, Hoffman, & Tidwell, 2011; Vitaro, Brendgen, Ladouceur, & Tremblay, 2001). Thus, gambling can be seen as risk behavior associated with different kinds of problem behaviors, such as substance use (Chaumeton, Ramowski, & Nystrom, 2011; Ólason et al., 2006; Yip et al., 2011), truancy (Splevins et al., 2010), serious fighting and carrying a weapon (Potenza et al., 2011; Rahman et al., 2012; Slavin et al., 2013; Yip et al., 2011), and delinquency and criminality (Barnes et al., 2011; Welte, Barnes, Tidwell, & Hoffman, 2009). However, only a few studies have examined these problem behaviors in the same analysis and studied the co-occurrence of gambling and problem behaviors. Furthermore, the assessment of gambling problems has usually been based on diagnostic gambling screens, such as the South Oaks Gambling Screen-Revised for Adolescents and the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; Delfabbro, Lahn, & Grabosky, 2005), although the use of these measurement instruments in adolescents has raised some critique (Stinchfield, 2010). Typically, gambling is measured by dichotomous measures that distinguish gamblers from non-gamblers (or problem gamblers from non-problem gamblers), or, in some studies, by the severity of problem gambling (gamblers are divided into groups on the basis of diagnostic gambling screens; Chaumeton et al., 2011; Potenza et al., 2011; Rahman et al., 2012; Slavin et al., 2013; Yip et al., 2011). In the present study, we are interested in the level of gambling involvement (i.e., gambling frequency). This analysis aims to find signs of possible thresholds for harm associated with gambling. Gambling participation can also be a useful measure when examining gambling behavior and related outcomes, such as the gambler's health and well-being (Rodgers, Caldwell, & Butterworth, 2009).

Gambling and other problem behavior patterns may differ between sexes. For example, substance use is common among both girl and boy gamblers (Chaumeton et al., 2011; Desai, Maciejewski, Pantalon, & Potenza, 2005; Martins, Storr, Ialongo, & Chilcoat, 2008); in contrast, internalizing behaviors (Desai et al., 2005; Martins et al., 2008) are more common among girl gamblers. Different behavior patterns between sexes are also shown among marijuana users, Internet users, and video gamers (Desai, Krishnan-Sarin, Cavallo, & Potenza, 2010; Liu, Desai, Krishnan-Sarin, Cavallo, & Potenza, 2011; Schepis et al., 2011).

Despite many gambling opportunities and the interest of youths in gambling, relatively little is known internationally about adolescent gambling and problem behaviors related to it. To the best of our knowledge, this is the first study conducted in the European context that examines gambling frequency and its associations with different behaviors in the same model among boys and girls. This study also adds knowledge about gambling and its associations with problem behavior at school, such as bullying and truancy. These are important and relevant topics when considering adolescents' well-being. Gambling research involving adolescents is often focused on prevalence and is examined in relation to alcohol use (Blinn-Pike, Worthy, & Jonkman, 2010). Thus, the aim of the present large-scale study is to examine the associations between problem behavior—engagement in truancy, bullying, delinquency, and substance use—and gambling frequency among eighth- and ninth-grade boys and girls.

Method

Participants

Data were obtained from the nationwide School Health Promotion Study (SHPS), which was approved by the ethics committee of Pirkanmaa Hospital District ethical committee of Tampere University Hospital. The SHPS survey is a cross-sectional survey that monitors well-being, health behavior, and school experiences of adolescents in the eighth and ninth grades of lower secondary schools. In Finland, compulsory education starts at the age of 7 years (first grade) and ends at the age of 16 years (ninth grade).

In total, 102,545 students in the eighth and ninth grades participated in the study. Students who had not answered the question concerning gambling frequency (1.3%) were excluded from the study, bringing the total number of participants to 101,167. Of the respondents, 49.8% were eighth graders (mean age = 14.9 years, *SD* = 0.4) and 50.1% were ninth graders (mean age = 15.9 years, *SD* = 0.4); 49.5% of the adolescents were boys.

Instruments

Gambling frequency was measured by asking, "How often do you gamble?" The original alternatives were "on 6–7 days per week," "on 3–5 days per week," "on 1–2 days per week," "less than once a week," "less than once a month," and "I have not gambled during the previous year." For the analysis, the first two categories were combined as "on 3–7 days per week."

Problem behavior in adolescents was measured through questions on bullying, truancy, delinquency, and substance use. Bullying was defined as follows: "A pupil is being bullied when another pupil, or a group of pupils, say or do nasty and unpleasant things to him or her. It is also bullying when a pupil is teased repeatedly in a way he or she does not like. But it is not bullying when two pupils of about the same strength or power argue or fight." Pupils were asked, "How often have you bullied other pupils during this semester?" The response scale was "several times a

week,” “approximately once a week,” “less frequently,” and “never.” Truancy was asked about with the following question: “How many school days have you missed during the last 30 days because of truancy?” The scale was “none,” “1 day,” “2–3 days,” and “more than 3 days.”

In the questionnaire, delinquency was measured with five questions: “Have you done any of the following acts during the last 12 months: written or painted or done graffiti on walls, buses, bus shelters, windows, or similar places?; deliberately damaged or destroyed school property or a school building?; deliberately damaged or destroyed something other than school property?; stolen something from a shop or a stand?; battered someone?” All of the questions were answered on a scale of “no,” “once,” “2–4 times,” and “more than 4 times.” Adolescents who had committed at least one of the acts at least once during the last 12 months were considered to have committed delinquent acts. Internal consistency (Cronbach’s alpha) for the complete list of delinquent acts was 0.8.

Substance use was examined with questions concerning drinking alcohol, smoking, glue sniffing, using alcohol and medicine simultaneously, using medicine, using snuff, and experimenting with drugs. Alcohol drinking was measured by both frequency of alcohol drinking and drunkenness-related drinking. The question covering the frequency of alcohol drinking was “How often do you use alcohol altogether, e.g., half a bottle of beer or more?” It could be answered by using one of five categories: “I don’t drink alcohol,” “rarely,” “about once a month,” “a couple of times a month,” or “once a week or more often.” The question about the frequency of drunkenness was “How often do you use alcohol until you are really drunk?” It could be answered by using one of four alternatives: “never,” “rarely,” “1–2 times a month,” or “once a week or more often.”

Smoking was measured on a scale of “once a day or more often,” “once a week or more often (not daily),” “less than once a week,” “have quit,” and “do not smoke.” The use of snuff was measured on a 4-point scale: “never,” “tried it once,” “occasionally,” and “daily.” The last two alternatives were combined.

Glue sniffing, simultaneous alcohol and medicine use, and medicine use for intoxicating purposes were measured on a 4-point scale: “never,” “once,” “2–4 times,” and “5 times or more.” Experimenting with drugs was measured from the adolescents’ answers concerning different kinds of drugs that they had tried at least once. The scale was as follows: “never,” “once,” “2–4 times,” and “5 times or more.” Drug types were divided into four categories: (a) marijuana or cannabis; (b) ecstasy; (c) Subutex; and (d) heroin, cocaine, amphetamine, LSD, or other similar drugs. Those adolescents who had experimented with at least one of the drugs at least once were considered to have tried drugs. Internal consistency (Cronbach’s alpha) for the complete list of drugs was 0.8.

Response activity for the questions on problem behavior was very good: approximately 1% of the respondents did not answer these questions. This was the case among both boys and girls. Only the question concerning truancy (5.1% in total

sample: 4.9% among boys and 5.3% among girls) and the question about using snuff (1.7% among boys) had higher numbers of missing values.

Procedure

The SHPS is a structured questionnaire that is completed during a school lesson under the supervision of a teacher. Answering is anonymous and voluntary. Confidentiality is ensured by having all questionnaires per classroom enclosed in an envelope and directing them to the SHPS research group. Those students who are absent on the day of the survey are not contacted afterwards.

Since 2002, the SHPS has been conducted in two parts: in even-numbered years in Southern Finland, Eastern Finland, and Lapland and in odd-numbered years in Western Finland, Oulu, and Åland. The present study consists of data from the years 2010 and 2011, thus covering all of Finland. Rather than being a sample, the current data comprised practically all of the student population in the areas studied and all students had equal probability (nearly 100% probability) of being included in the data set. Overall, the school context acts mainly as a convenient means for reaching the adolescents. In 2010, data collection covered 78% of Finnish eighth and ninth graders in the studied regions, and in 2011, it covered 81% of these students.

Of note is that in 2010, the minimum legal age for gambling was 15 years, and in 2011, the age limit was 18 years for all gambling forms other than playing slot machines.

Data Analysis

The main interest in this study was the five-category gambling frequency indicator. The last category, “I have not gambled during the previous year,” was chosen as the reference category for the analysis. The associations of gambling frequency with outcome measures were studied by using polychotomous logistic regression. First, we examined these relationship in a total sample in which sex and grade were adjusted, and then we examined them separately for boys and girls in which grade was adjusted. Polychotomous logistic regression is useful for situations in which subjects may be classified on the basis of values in a set of predictor variables. This statistical method was used to facilitate analyses of differences between classes in more detail. Given the size of the data set, this choice produced more in-depth information on the relationships between the predictor and outcome variables.

In Model 1, the predictor variables were entered into the model one at a time. Thus, Model 1 contained only one problem behavior variable and the adjusted variables sex and grade level. In Model 2, all predictor variables were included in the model at the same time. In this model, sex and grade level were again adjusted. When we examined associations among boys and girls, the grade level was adjusted. A statistically significant overall relationship was found between the combination of independent variables and the dependent variable, and there was no evidence of numerical problems in the models. Analysis of residuals did not result in exclusion

of cases from the data set. Moreover, the classification accuracy surpassed the proportional by chance accuracy criteria, supporting the utility of the model (Schwab, 2006). The statistical analyses were conducted by using IBM SPSS Statistics 20. Results are presented as odds ratios (ORs) and 95% confidence intervals.

Results

Gambling

In 2010, 62% of adolescents had gambled during the previous year, and in 2011, 61% of adolescents had done so. In both grade levels, boys gambled more often than girls (Table 1). For both sexes, weekly gambling was most common in the ninth grade. The risk of gambling on 1–2 days a week was 8 times as high among boys as among girls and 1.6 times as high among ninth graders as among eighth graders.

Problem Behaviour

Of the respondents, 4.1% of girls and 4.5% of boys had missed three or more school days because of truancy, and 1.3% of girls and 4.5% of boys had bullied someone several times a week. As many as 22.9% of boys had committed delinquent acts during the previous year. For girls, the percentage was 18.1 (Table 1).

Daily smoking occurred in 13.6% of girls and 16.3% of boys, and 15.5% of boys used snuff at least occasionally. Using snuff was less common among girls: Only 2.6% used it at least occasionally. In addition, 5.9% of girls and 7.7% of boys used alcohol at least once a week. Among girls, 2.2% used alcohol to get drunk once a week or more often, and 3.5% of boys did so.

Sniffing glue had been tried at least once by 5.4% of girls and 4.6% of boys. For girls, 6.1% had used alcohol and medicine simultaneously and 3.6% of them had used medicine for intoxicating purposes at least once. For boys, the percentages were 2.9% for simultaneous use of alcohol and medicine and 1.7% for using medicine for intoxicating purposes. In addition, 6.6% of girls and 9.3% of boys had tried drugs at least once.

Associations between Gambling Frequency and Problem Behavior

In the model with the total sample in which grade level and sex were adjusted (Model 1), the risks for truancy, bullying, delinquency, and substance use increased with the increase in frequency of gambling. Overall, even the lowest gambling frequency, gambling less often than monthly, was associated with problem behaviors. Those who had gambled during the previous year had a higher risk of problem behavior than did those who had not gambled. For example, the risk for committing delinquent acts for those who gambled on 3–7 days was 13 times as high as it was for those who had not gambled. Additionally, the OR for smoking daily

Table 1
Frequency and Proportions (%) of Gambling and Problem Behavior According to Sex and Grade Level

Gambling and problem behaviors	Boys		Girls		Combined
	8 th grade	9 th grade	8 th grade	9 th grade	8 th and 9 th grades
Gambling frequency	n (%)	n (%)	n (%)	n (%)	N (%)
On 3-7 days a week	3922 (15.6)	4427 (17.5)	465 (1.8)	510 (2.0)	9324 (9.2)
On 1-2 days a week	4564 (18.1)	5427 (21.4)	694 (2.8)	868 (3.4)	11553 (11.4)
Less than 1x a week	5424 (21.6)	6441 (25.4)	1941 (7.7)	2627 (10.3)	16433 (16.2)
Less than 1x a month	5561 (22.1)	5416 (21.4)	6332 (25.1)	8337 (32.7)	25646 (25.4)
Not during this year	5691 (22.6)	3618 (14.3)	15747 (62.5)	13155 (51.6)	38211 (37.8)
Problem behavior					
Truancy					
Over 3 days	932 (3.9)	1223 (5.1)	873 (3.7)	1101 (4.5)	4129 (4.3)
2-3 days	798 (3.4)	1270 (5.0)	1113 (4.7)	1447 (6.0)	4628 (4.8)
1 day	2083 (8.7)	2656 (11.0)	2756 (11.6)	3236 (13.4)	10731 (11.2)
Never	19996 (84.0)	19039 (78.7)	19051 (80.1)	18414 (76.1)	76500 (79.7)
Bullying					
Several times a week	1058 (4.2)	1219 (4.8)	315 (1.3)	327 (1.3)	2919 (2.9)
Approx. 1x a week	1418 (5.7)	1516 (6.0)	624 (2.5)	599 (2.4)	4157 (4.1)
Less frequently	10464 (41.7)	10261 (40.6)	6823 (27.1)	6663 (26.2)	34211 (33.9)
Never	12131 (48.4)	12247 (48.5)	17369 (69.1)	17862 (70.2)	59609 (59.1)
Delinquency					
Yes	5675 (22.6)	5865 (23.2)	4717 (18.7)	4445 (17.5)	20712 (20.5)
No	19453 (77.4)	19429 (76.8)	20451 (81.3)	21030 (82.5)	80363 (79.5)
Smoking					
1x a day or more	3231 (13.0)	4908 (19.6)	2727 (10.9)	4102 (16.2)	14968 (14.9)
1x a week or more, not daily	950 (3.8)	1216 (4.9)	1086 (4.3)	1410 (5.6)	4662 (4.7)
Less than 1x a week	1442 (5.8)	1885 (7.5)	2154 (8.6)	2768 (10.9)	8249 (8.2)
Have quit	3780 (15.2)	3765 (15.0)	3118 (12.5)	3529 (13.9)	14192 (14.2)
Do not smoke	15462 (62.2)	13244 (52.9)	15900 (63.6)	13502 (53.3)	58108 (58.0)
Using snuff					
Daily	668 (2.7)	1199 (4.8)	93 (0.4)	120 (0.5)	2080 (2.1)
Occasionally	2154 (8.7)	3667 (14.7)	379 (1.5)	691 (2.7)	6891 (6.9)
Tried it once	2226 (9.0)	2677 (10.7)	1185 (4.8)	2109 (8.3)	8197 (8.2)
Never	19607 (79.5)	17410 (69.8)	23254 (93.3)	22371 (88.5)	82642 (82.8)
Alcohol drinking					
1x a week or more	1462 (5.9)	2395 (9.5)	1137 (4.5)	1860 (7.3)	6854 (6.8)
A couple of times per month	2912 (11.7)	5035 (20.1)	3494 (13.6)	5344 (21.0)	16684 (16.6)
Approx. 1x a month	2037 (8.2)	3042 (12.1)	2509 (10.0)	3513 (13.8)	11101 (11.1)
Less often	5468 (22.0)	5705 (22.7)	5566 (22.2)	5972 (23.5)	22711 (22.6)
Do not use	12934 (52.1)	8923 (35.6)	12427 (49.6)	8711 (34.3)	42995 (42.8)
Drunkenness-related drinking					
1x a week or more	682 (2.8)	1051 (4.2)	465 (1.9)	651 (2.6)	2849 (2.8)
Approx. 1-2x per month	2077 (8.4)	3819 (15.2)	2556 (10.2)	4135 (16.3)	12587 (12.6)
Less often	5458 (22.0)	7686 (30.7)	5804 (23.2)	8190 (32.3)	27138 (27.1)
Never	16547 (66.8)	12489 (49.9)	16190 (64.7)	12395 (48.9)	57621 (57.5)
Alcohol and medicine for intoxication					
5x or more	480 (1.9)	598 (2.4)	392 (1.6)	505 (2.0)	1975 (2.0)
2-4 times	329 (1.3)	475 (1.9)	728 (2.9)	968 (3.8)	2500 (2.5)
Once	701 (2.8)	755 (3.0)	1308 (5.2)	1763 (6.9)	4527 (4.5)
Never	23455 (94.0)	23315 (92.7)	22637 (90.3)	22156 (87.3)	91563 (91.0)

Table 1. Continued.

Gambling and problem behaviors	Boys		Girls		Combined
	8 th grade	9 th grade	8 th grade	9 th grade	8 th and 9 th grades
Medicine for intoxication					
5x or more	413 (1.7)	507 (2.0)	391 (1.6)	460 (1.8)	1771 (1.8)
2-4 times	242 (1.0)	285 (1.1)	603 (2.4)	645 (2.5)	1775 (1.8)
Once	385 (1.5)	487 (1.9)	869 (3.5)	936 (3.7)	2677 (2.7)
Never	23909 (95.8)	23839 (94.9)	23179 (92.6)	23323 (92.0)	94250 (93.8)
Glue sniffing					
5x or more	451 (1.8)	522 (2.1)	316 (1.3)	276 (1.1)	1565 (1.6)
2-4 times	396 (1.6)	428 (1.7)	699 (2.8)	538 (2.1)	2061 (2.1)
Once	1195 (4.8)	1108 (4.4)	1409 (5.6)	1296 (5.1)	5008 (5.0)
Never	22915 (91.8)	23075 (91.8)	22634 (90.3)	23271 (91.7)	91895 (91.4)
Drugs					
At least once	1745 (7.0)	2935 (11.7)	1109 (4.7)	2159 (8.5)	8029 (8.0)
Never	23221 (93.0)	22197 (88.3)	23874 (95.3)	23228 (91.5)	92520 (92.0)

was 45 and for drinking alcohol weekly was 86 among adolescents who gambled on 3–7 days (Table 2).

In the model with the total sample in which all predictor variables were included at the same time (Model 2), the associations between gambling and truancy, bullying, delinquency, smoking, using snuff, alcohol drinking, drunkenness-related drinking, and glue sniffing remained significant; however, the ORs for each problem behavior were reduced. For example, the risk for committing delinquent acts for those who gambled on 3–7 days was 2.5 times as high as for those who did not gamble. The OR for smoking among those who gambled 3–7 times a week was 4.1 for daily smoking in comparison to those who did not gamble. The risk for problem behaviors was significant even at the lowest gambling frequency. For instance, the OR for drinking alcohol a couple of times a month among those who gambled less often than monthly was 2.1 in comparison to those who did not gamble. The risk for truancy was statistically significant only among weekly gamblers (Table 2).

For boys and girls, the risks for truancy, delinquency, and substance use increased when gambling frequency increased in Model 1. The risk was statistically significant even among boys and girls who gambled less often than monthly. However, the risk for medicine use for intoxicating purposes was statistically significant only among boys who gambled monthly or weekly. This was also the case for bullying among girls. For girls, the risk of bullying increased when all other problem behaviors were taken into account (Model 2). Among boys, gambling appeared to be a protective factor for bullying in Model 1, but in Model 2, the risk for bullying was higher among gamblers.

As in the total sample, truancy, bullying, delinquency, smoking, using snuff, alcohol drinking, drunkenness-related drinking, and glue sniffing among

Table 2
Odds Ratios (ORs) and 95% Confidence Intervals (CIs) for Sex, Grade Level, and Involvement in Problem Behavior among 14- to 16-Year-Old Adolescents (N=101,167) in Relation to Gambling Frequency

Characteristics and problem behaviors	N (%)	Gambling frequency					
		Less than monthly OR (CI)		Less than weekly		1-2 days per week	3-7 days per week
Sex							
Boys	50491 (49.9)	26.6 (24.8-28.5)	19.9 (18.7-21.0)	8.1 (7.7-8.4)	2.3 (2.2-2.4)		
Girls	50676 (50.1)	1.0	1.0	1.0	1.0		
Grade level							
8 th grade	50826 (50.2)	0.7 (0.6-0.7)	0.6 (0.6-0.7)	0.6 (0.6-0.7)	0.7 (0.7-0.7)		
9 th grade	50341 (49.8)	1.0	1.0	1.0	1.0		
Problem behavior							
Truancy		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Over 3 days	4129 (4.3)	2.0 (1.8-2.2)	0.9 (0.8-1.0)	3.4 (3.1-3.9)	1.0 (0.8-1.1)	5.5 (4.9-6.2)	1.1 (0.9-1.2)
2-3 days	4628 (4.8)	1.8 (1.6-1.9)	0.9 (0.8-1.0)	2.8 (2.6-3.1)	1.0 (0.9-1.1)	4.7 (4.2-5.2)	1.3 (1.1-1.5)
1 day	10731 (11.2)	1.7 (1.6-1.8)	1.1 (1.0-1.1)	2.4 (2.2-2.6)	1.1 (1.0-1.2)	3.6 (3.3-3.9)	1.4 (1.3-1.5)
None	76500 (79.7)	1.0	1.0	1.0	1.0	1.0	1.0
Bullying							
Several times a week	2919 (2.9)	1.9 (1.6-2.2)	0.9 (0.8-1.1)	4.0 (3.5-4.7)	1.3 (1.1-1.6)	6.2 (5.3-7.3)	1.4 (1.2-1.7)
Approx. once a week	4157 (4.1)	2.2 (2.0-2.4)	1.3 (1.2-1.5)	3.5 (3.1-3.9)	1.5 (1.4-1.7)	5.3 (4.7-5.9)	1.8 (1.6-2.1)
Less frequently	34211 (33.9)	1.8 (1.8-1.9)	1.3 (1.3-1.4)	2.6 (2.5-2.7)	1.6 (1.5-1.7)	3.1 (3.0-3.3)	1.7 (1.6-1.8)
Never	59609 (59.1)	1.0	1.0	1.0	1.0	1.0	1.0
Delinquency							
Yes	20712 (20.5)	2.4 (2.3-2.5)	1.4 (1.3-1.5)	4.1 (3.9-4.3)	1.7 (1.6-1.8)	6.2 (5.8-6.5)	1.9 (1.8-2.1)
No	80363 (79.5)	1.0	1.0	1.0	1.0	1.0	1.0
Smoking							
1x a day or more	14968 (14.9)	3.9 (3.7-4.2)	1.8 (1.6-1.9)	10.0 (9.4-10.7)	2.8 (2.5-3.0)	20.0 (18.6-21.6)	3.6 (3.2-3.9)
1x a week or more, not daily	4662 (4.7)	2.9 (2.7-3.2)	1.4 (1.3-1.6)	6.2 (5.6-6.9)	2.0 (1.8-2.3)	9.4 (8.4-10.5)	2.1 (1.8-2.4)
Less than 1x a week	8249 (8.2)	2.6 (2.4-2.7)	1.3 (1.2-1.4)	4.3 (4.0-4.6)	1.6 (1.5-1.7)	6.2 (5.6-6.7)	1.7 (1.5-1.9)
Have quit	14192 (14.2)	2.2 (2.1-2.3)	1.4 (1.3-1.4)	3.3 (3.1-3.5)	1.6 (1.5-1.7)	4.2 (3.9-4.5)	1.7 (1.5-1.8)
Do not smoke	58108 (58.0)	1.0	1.0	1.0	1.0	1.0	1.0

Table 2. Continued.

Characteristics and problem behaviors	N (%)	Gambling frequency			
		Less than monthly OR (CI)	Less than weekly	1-2 days per week	3-7 days per week
Using snuff					
Daily or occasionally	8971 (9.0)	3.3 (2.9-3.7)	1.5 (1.3-1.7)	7.8 (7.0-8.7)	2.2 (1.9-2.4) 13.2 (11.9-14.8) 2.6 (2.3-2.9) 28.3 (25.4-32.6) 3.3 (2.9-3.7)
Tried it once	8197 (8.2)	2.8 (2.6-3.0)	1.4 (1.3-1.6)	4.8 (4.4-5.2)	1.7 (1.6-1.9) 6.8 (6.3-7.4) 2.0 (1.8-2.2) 8.8 (8.0-9.6) 2.0 (1.8-2.3)
Never	82642 (82.8)	1.0	1.0	1.0	1.0
Alcohol drinking					
1x a week or more often	6854 (6.8)	4.2 (3.8-4.6)	1.9 (1.7-2.2)	11.5 (10.5-12.7)	2.7 (2.3-3.1) 26.3 (23.7-29.3) 3.8 (3.2-4.5) 86.1 (77.4-95.8) 4.4 (3.7-5.3)
A couple of times per month	16684 (16.6)	4.1 (3.9-4.4)	2.2 (2.0-2.4)	9.7 (9.1-10.4)	3.1 (2.8-3.4) 18.7 (17.4-20.2) 4.4 (3.9-4.9) 28.2 (26.0-30.6) 4.5 (3.9-5.1)
Approx. 1x a month	11101 (11.1)	3.5 (3.3-3.7)	2.2 (2.0-2.3)	7.2 (6.7-7.7)	3.0 (2.7-3.3) 11.7 (10.7-12.7) 3.9 (3.5-4.4) 14.7 (13.3-16.1) 3.8 (3.3-4.3)
Less often	22711 (22.6)	2.7 (2.6-2.8)	2.1 (1.9-2.2)	4.3 (4.0-4.5)	2.6 (2.4-2.8) 5.7 (5.4-6.1) 3.1 (2.9-3.4) 6.1 (5.6-6.6) 2.9 (2.6-3.2)
Do not use	42995 (42.8)	1.0	1.0	1.0	1.0
Drunkenness-related drinking					
1x a week or more often	2849 (2.8)	3.3 (2.8-3.8)	1.0 (0.8-1.2)	8.9 (7.6-10.5)	1.1 (0.9-1.4) 22.9 (19.5-27.0) 1.3 (1.1-1.7) 127.3(109.5-148.0) 2.1 (1.7-2.7)
Approx. 1 - 2x per month	12587 (12.6)	3.6 (3.4-3.8)	1.2 (1.1-1.3)	8.4 (7.9-9.0)	1.4 (1.2-1.6) 16.2 (15.0-17.5)- 1.5 (1.3-1.7) 29.4 (27.1-32.0) 1.6 (1.4-1.8)
Less often	27138 (27.1)	2.9 (2.8-3.0)	1.2 (1.1-1.3)	5.3 (5.0-5.5)	1.4 (1.3-1.5) 8.0 (7.6-8.5) 1.5 (1.3-1.6) 10.2 (9.5-10.9) 1.5 (1.3-1.6)
Never	57621 (57.0)	1.0	1.0	1.0	1.0
Alcohol and medicine for intoxication					
5x or more	1975 (2.0)	1.9 (1.7-2.3)	0.8 (0.6-1.0)	3.5 (3.0-4.2)	0.8 (0.7-1.0) 6.5 (5.4-7.9) 0.9 (0.7-1.2) 35.2 (30.1-41.3) 0.9 (0.7-1.2)
2-4 times	2500 (2.5)	2.7 (2.4-3.0)	1.1 (0.9-1.2)	4.8 (4.2-5.4)	1.1 (1.0-1.3) 6.3 (5.4-7.4) 1.0 (0.8-1.2) 13.3 (11.5-15.5) 1.0 (0.8-1.2)
One time	4527 (4.5)	2.3 (2.2-2.5)	1.1 (1.0-1.2)	3.8 (3.4-4.2)	1.1 (1.0-1.3) 5.3 (4.8-6.0) 1.1 (1.0-1.3) 9.4 (8.4-10.6) 1.1 (1.0-1.3)
Never	91563 (91.0)	1.0	1.0	1.0	1.0

Table 2. Continued.

Characteristics and problem behaviors	N (%)	Gambling frequency					
		Less than monthly OR (CI)	Less than weekly	1-2 days per week	3-7 days per week		
Medicine for intoxication							
5x or more	1771 (1.8)	1.6 (1.3-1.9)	2.4 (1.9-2.8)	0.7 (0.6-1.0)	4.3 (3.6-5.3)	28.2 (24.0-33.0)	1.4 (1.0-1.7)
2-4 times	1775 (1.8)	2.0 (1.8-2.3)	3.1 (2.6-3.6)	0.9 (0.7-1.1)	4.1 (3.4-4.9)	8.8 (7.4-10.4)	0.9 (0.7-1.1)
One time	2677 (2.7)	1.8 (1.6-2.0)	2.6 (2.3-3.0)	0.9 (0.8-1.0)	3.3 (2.9-3.9)	6.6 (5.7-7.6)	0.9 (0.7-1.1)
Never	94250 (93.8)	1.0	1.0	1.0	1.0	1.0	1.0
Glue sniffing							
5x or more	1565 (1.6)	1.8 (1.4-2.1)	2.9 (2.4-3.6)	0.9 (0.7-1.2)	4.4 (3.5-5.5)	33.3 (27.9-39.9)	1.8 (1.4-2.3)
2-4 times	2061 (2.1)	2.4 (2.1-2.7)	3.4 (3.0-4.0)	1.1 (0.9-1.2)	5.4 (4.6-6.3)	10.9 (9.3-12.7)	1.4 (1.1-1.7)
One time	5008 (5.0)	2.0 (1.8-2.1)	3.1 (2.8-3.4)	1.1 (1.0-1.3)	4.2 (3.7-4.6)	6.6 (5.9-7.3)	1.4 (1.2-1.6)
Never	91895 (91.4)	1.0	1.0	1.0	1.0	1.0	1.0
Drugs							
At least once	8029 (8.0)	2.3 (2.2-2.5)	4.1 (3.7-4.4)	0.9 (0.8-1.0)	6.5 (6.0-7.1)	16.8 (15.4-18.3)	1.0 (0.9-1.1)
Never	92520 (92.0)	1.0	1.0	1.0	1.0	1.0	1.0

Note. The reference category for the dependent variable was "I have not gambled during the previous year." Numbers in bold are statistically significant ($p \leq .05$). In Model 1, predictor variables were entered into the model one at a time. In Model 2, all predictor variables were included in the model at the same time. In both models, sex and grade level were adjusted.

boys and girls remained statistically significant in Model 2. Gambling monthly or on 1–2 days per week appeared to be a protective factor for medicine use for intoxication among boys. Drunkenness-related drinking was not statistically significantly more common among girls who gambled on 3–7 days per week.

Discussion

This large-scale study examined gambling frequency and problem behavior among Finnish eighth- and ninth-grade boys and girls. Based on our results, the more frequent the gambling, the higher the ORs for a range of problem behaviors. This pattern of associations was found among both boys and girls. Adolescents who engaged in gambling on a daily or weekly basis were the most vulnerable group for problem behaviors. However, even infrequent gambling was associated with different problem behaviors.

As in previous studies, this research showed that gambling is a relatively common activity among adolescents (Luder et al., 2010; Shaffer et al., 1999; Slepivins et al., 2010). In 2010, 62% of adolescents had gambled during the previous year, and in 2011, 61% of adolescents had done so. In addition, as in other studies, gambling was significantly higher among boys than among girls (Barnes et al., 2011; Blinn-Pike et al., 2010).

Furthermore, our findings revealed that gambling behavior in young people is related to substance use. Risk of smoking, using snuff, alcohol drinking, drunkenness-related drinking, glue sniffing, using alcohol and medicine simultaneously, using medicine, and experimenting with drugs increased with the increase in frequency of gambling. An association between gambling and substance use has also been indicated in previous studies (Chaumeton et al., 2011; Ólason et al., 2006; Potenza et al., 2011; Rahman et al., 2012; Yip et al., 2011). When examining these associations by sex, we discovered that gambling and substance use were related among both boys and girls. Similarly, other studies have found a co-occurrence in substance use and gambling among both boys and girls (Chaumeton et al., 2011; Desai et al., 2005; Martins et al., 2008).

Gambling was also related to truancy and delinquency. These findings are consistent with those from a study by Slepivins et al. (2010), who found that compared with non-problem gamblers, problem gamblers were more likely to have missed school because of gambling. In addition, these findings are consistent with those of Welte et al. (2009), who discovered that problem gambling co-occurred with substance use and conduct disorders. Interestingly, our findings also revealed that those who gambled more often were more involved in bullying. However, among boys, gambling seemed to be a protective factor, but when all problem behaviors were taken into account, the risk for bullying increased with gambling involvement. Moreover, girls' risk for bullying increased in the model that contained all problem behaviors. To the best of our knowledge, this was the first study to examine gambling and its association with bullying.

When examining the co-occurrence of gambling and other problem behaviors (Model 2), we found that truancy, bullying, delinquency, smoking, using snuff, alcohol drinking, drunkenness-related drinking, and glue sniffing remained significant. In line with our results, those of Slavin and colleagues (2013) showed that adolescents defined as low-risk gamblers or at-risk/problem gamblers who were involved in serious physical fighting were more likely than non-gamblers to report smoking and lifetime alcohol consumption. Co-occurrence of gambling, delinquency, and substance use has been demonstrated in other studies as well (Barnes, Welte, Hoffman, & Dintcheff, 2005; Barnes et al., 2011; Vitaro et al., 2001). To extend research on gambling and problem behaviors, we also investigated these relations among boys and girls separately and in different gambling frequencies. Our study revealed strong associations between gambling and problem behaviors among both sexes. Furthermore, although many prior studies have concentrated on problem gamblers, this study showed that even less frequent gambling may be associated with various problem behaviors.

The associations between problem behavior indicators and gambling remained significant even after all predictor variables were taken into account. The discovery that the ORs decreased in this model is evidence of shared variance in all of these behaviors, which supports the idea that gambling and several other behaviors are part of the same phenomenon: problem behavior syndrome (Barnes et al., 2011; Jessor, 1998; Vitaro et al., 2001). This suggests that involvement in some problem behaviors increases the likelihood of involvement in other problem behaviors, as our study demonstrated. This phenomenon could be explained by common risk factors for these problem behaviors. Although the nature of these associations is undetermined, studies have examined impulsivity, parental supervision, deviant friends, and moral disengagement as shared predictors of adolescent gambling and problem behaviors (Barnes et al., 2005, 2011; Leeman, Hoff, Krishnan-Sarin, Patock-Peckham, & Potenza, 2014; Vitaro et al., 2001; Wanner, Vitaro, Charbonneau, & Tremblay, 2009). Furthermore, pubertal status and sensation seeking may play a role in these deviant behaviors, as shown in the case of substance use (Kong et al., 2013).

Limitations

Some limitations in this study should be taken into consideration. The information was gathered by self-reports, and thus we cannot exclude the possibility of over- or underreporting. This possibility may be noticed particularly among adolescents (Brener, Billy, & Grady, 2003). The cross-sectional study design prevents us from drawing causal conclusions about the behaviors; as such, further research is needed in which longitudinal data are used to determine the temporal relationship between gambling frequency and problem behaviors.

Of note is that the final sample may not cover those who gamble the most and engage most in problem behavior. As a non-response is often associated with different types of problems (Pietilä, Rantakallio, & Läärä, 1995), the estimates for gambling

frequency and problem behaviors may be underestimated. This is especially true in the case of truancy. Because the surveys were conducted in the classroom, it is likely that we undersampled those who have the greatest tendency not to be in class. On the other hand, the survey is based on a large and representative sample of Finnish eighth- and ninth-grade students.

Furthermore, the SHPS survey was not specific to gambling. The data contained one item that measured gambling, embedded within a large survey covering questions about health, health behavior, and school experiences of adolescents. The survey did not contain a validated problem gambling screen. However, as our goal was not to identify problem gamblers, but to study gambling involvement in the adolescent population and its associations with problem behaviors, we felt that there was no need for validated problem gambling screens. In the field of gambling research, criticism has been voiced concerning commonly used instruments to screen for adolescents' gambling screening instruments (Stinchfield 2010). The survey neither collected information on money spent on gambling or on gambling types (e.g., slot machines, lottery). In addition, the question concerning gambling did not explain what is meant by gambling. Thus, adolescents may interpret gambling in different ways.

Conclusions

Our study provided information about adolescent gambling as a risk behavior. Significant associations that were found between gambling and numerous problem behaviors should be taken into consideration when designing prevention and treatment programs. Our findings also emphasize the need for further study of adolescent gambling. More research is warranted on possible shared risk factors associated with gambling and problem behavior.

Because gambling and problem behaviors co-occur, it is important to increase awareness and education concerning adolescents' gambling. This perspective on public health should target the entire population, not only those who gamble the most. Underage gambling cannot be tackled by national regulation alone. It would be beneficial to give guidance to teachers, social workers, and health professionals about the possible risk associated with gambling. Furthermore, educational prevention programs for students should be arranged and information materials should be made easily available to them.

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Appendix A
Odds Ratios (ORs) and 95% Confidence Intervals (CIs) for Involvement in Problem Behavior among 14- to 16-Year-Old Boys
(N = 50,491) in Relation to Gambling Frequency

Grade and problem behaviors	N (%)	Gambling frequency among boys					
		Less than monthly		Less than weekly		On 1-2 days per week	
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Grade level							
8 th grade	25162 (49.8)	0.6 (0.6-0.7)		0.5 (0.5-0.6)		0.5 (0.5-0.6)	
9 th grade	25329 (50.2)	1.0		1.0		1.0	
Problem behavior		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Truancy							
Over 3 days	2155 (4.5)	1.2 (1.0-1.5)	0.8 (0.6-1.0)	1.9 (1.6-2.3)	0.8 (0.6-1.0)	3.0 (2.4-3.6)	0.9 (0.7-1.1)
2-3 days	2068 (4.3)	1.3 (1.0-1.5)	0.8 (0.7-1.0)	1.9 (1.6-2.3)	0.9 (0.7-1.1)	3.6 (3.0-4.2)	1.2 (1.0-1.5)
1 day	4739 (9.9)	1.4 (1.3-1.6)	1.0 (0.9-1.1)	2.0 (1.8-2.2)	1.0 (0.9-1.2)	3.1 (2.8-3.3)	1.4 (1.2-1.5)
None	39035 (81.3)	1.0	1.0	1.0	1.0	1.0	1.0
Bullying							
Several times a week	2277 (4.5)	0.7 (0.6-0.8)	1.1 (0.9-1.4)	0.5 (0.5-0.6)	1.3 (1.0-1.6)	0.6 (0.5-0.7)	1.3 (1.0-1.6)
Approx. 1x a week	2934 (5.8)	0.8 (0.7-0.9)	1.5 (1.2-1.8)	0.6 (0.5-0.7)	1.7 (1.4-2.0)	0.5 (0.5-0.6)	1.9 (1.6-2.3)
Less frequently	20725 (41.2)	1.0 (0.9-1.0)	1.5 (1.4-1.6)	0.9 (0.8-0.9)	1.8 (1.7-1.9)	0.8 (0.8-0.9)	1.9 (1.7-2.0)
Never	24378 (48.5)	1.0	1.0	1.0	1.0	1.0	1.0
Delinquency							
Yes	11540 (22.9)	1.9 (1.7-2.1)	1.3 (1.2-1.5)	3.2 (2.9-3.5)	1.6 (1.4-1.8)	5.0 (4.6-5.4)	1.9 (1.7-2.1)
No	38882 (77.1)	1.0	1.0	1.0	1.0	1.0	1.0
Smoking							
1x a day or more	8139 (16.3)	2.2 (2.0-2.5)	1.2 (1.0-1.4)	5.1 (4.6-5.8)	1.6 (1.4-1.9)	10.3 (9.2-11.6)	2.1 (1.8-2.4)
1x a week or more, not daily	2166 (4.3)	2.4 (1.9-2.9)	1.2 (0.9-1.5)	4.6 (3.8-5.6)	1.5 (1.2-1.8)	7.5 (6.2-9.1)	1.6 (1.3-2.0)
Less than 1x a week	3327 (6.7)	2.7 (2.3-3.2)	1.5 (1.2-1.8)	5.1 (4.4-5.9)	1.8 (1.5-2.2)	7.6 (6.5-8.8)	2.0 (1.7-2.4)
Have quit	7545 (15.1)	2.1 (1.9-2.3)	1.4 (1.3-1.6)	3.2 (2.9-3.5)	1.6 (1.4-1.8)	4.1 (3.7-4.5)	1.7 (1.5-1.9)
Do not smoke	28706 (57.5)	1.0	1.0	1.0	1.0	1.0	1.0
Using snuff							
Daily or occasionally	7688 (15.5)	2.9 (2.5-3.3)	1.7 (1.5-2.0)	6.6 (5.7-7.6)	2.6 (2.2-3.0)	10.8 (9.4-12.4)	2.9 (2.4-3.4)
Tried it 1x	4903 (9.9)	2.9 (2.6-3.4)	1.9 (1.6-2.3)	4.9 (4.2-5.6)	2.4 (2.0-2.8)	6.8 (6.0-7.8)	2.6 (2.2-3.0)
Never	37017 (74.6)	1.0	1.0	1.0	1.0	1.0	1.0

Appendix A. Continued.

Grade and problem behaviors	N (%)	Gambling frequency among boys							
		Less than monthly		On 1-2 days per week					
Alcohol drinking									
1x a week or more often	3857 (7.7)	1.7 (1.4-2.0)	1.1 (0.9-1.4)	3.9 (3.3-4.5)	1.4 (1.1-1.8)	9.4 (8.1-10.9)	2.3 (1.8-2.9)	31.6 (27.3-36.6)	2.6 (2.1-3.4)
A couple of times per month	7946 (15.9)	3.1 (2.8-3.5)	1.8 (1.5-2.1)	7.8 (6.9-8.7)	2.8 (2.3-3.3)	15.3 (13.6-17.2)	4.0 (3.4-4.8)	23.9 (21.2-27.0)	4.1 (3.4-4.9)
Approx. 1x a month	5079 (10.2)	3.2 (2.8-3.6)	2.0 (1.7-2.4)	6.8 (6.0-7.8)	3.0 (2.5-3.5)	11.7 (10.2-13.3)	4.1 (3.4-4.8)	15.2 (13.2-17.4)	3.9 (3.3-4.7)
Less often	11173 (22.4)	2.8 (2.6-3.1)	2.2 (2.0-2.4)	4.8 (4.4-5.1)	2.9 (2.6-3.2)	6.5 (5.9-7.0)	3.5 (3.1-3.9)	6.9 (6.3-7.6)	3.2 (2.8-3.6)
Do not use	21857 (43.8)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Drunkness-related drinking									
1x a week or more often	1733 (3.5)	1.2 (0.9-1.6)	0.8 (0.6-1.3)	2.7 (2.1-3.6)	0.9 (0.6-1.3)	6.8 (5.3-8.7)	1.1 (0.8-1.5)	39.3 (31.3-49.4)	1.8 (1.3-2.5)
Approx. 1 - 2x per month	5896 (11.8)	2.6 (2.2-3.0)	1.2 (1.0-1.5)	6.2 (5.4-7.2)	1.4 (1.1-1.7)	12.3 (10.7-14.1)	1.5 (1.2-1.9)	23.1 (20.0-26.5)	1.6 (1.3-2.0)
Less often	13144 (26.4)	3.0 (2.7-3.3)	1.3 (1.2-1.5)	5.8 (5.3-6.3)	1.5 (1.4-1.7)	8.9 (8.1-9.7)	1.7 (1.4-1.9)	11.6 (10.6-12.7)	1.7 (1.5-2.0)
Never	29036 (58.3)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Alcohol and medicine for intoxication									
5x or more	1078 (2.2)	0.9 (0.6-1.3)	0.6 (0.4-1.0)	2.0 (1.4-2.7)	1.0 (0.6-1.6)	3.1 (2.3-4.3)	1.1 (0.7-1.7)	17.1 (12.8-22.7)	1.0 (0.6-1.6)
2-4 times	804 (1.6)	1.5 (1.0-2.1)	0.9 (0.6-1.3)	2.7 (2.0-3.8)	1.0 (0.7-1.5)	3.5 (2.5-4.8)	0.9 (0.6-1.2)	8.2 (6.0-11.1)	0.9 (0.6-1.3)
One time	1456 (2.9)	1.4 (1.1-1.8)	0.8 (0.6-1.0)	2.4 (1.9-3.0)	0.9 (0.7-1.2)	3.6 (2.9-4.6)	0.9 (0.7-1.2)	7.1 (5.7-8.8)	1.0 (0.8-1.3)
Never	46770 (93.3)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Medicine for intoxication									
5x or more	920 (1.8)	0.9 (0.6-1.3)	1.0 (0.6-1.6)	1.3 (0.9-1.8)	0.7 (0.4-1.2)	2.0 (1.5-2.8)	0.7 (0.4-1.1)	14.9 (11.2-19.8)	1.3 (0.8-2.0)
2-4 times	527 (1.1)	1.1 (0.7-1.6)	0.6 (0.4-1.0)	1.6 (1.2-2.4)	0.6 (0.4-0.9)	2.4 (1.7-3.4)	0.6 (0.4-0.9)	6.0 (4.3-8.3)	0.7 (0.4-1.0)
One time	872 (1.7)	1.2 (0.9-1.6)	0.7 (0.5-1.0)	1.7 (1.3-2.2)	0.6 (0.4-0.8)	2.3 (1.8-3.0)	0.5 (0.4-0.7)	5.0 (3.9-6.4)	0.6 (0.5-0.9)
Never	47748 (95.4)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Glue sniffing									
5x or more	973 (1.9)	0.8 (0.6-1.2)	0.7 (0.4-1.1)	1.4 (1.0-1.9)	0.6 (0.4-1.0)	2.0 (1.5-2.8)	0.6 (0.4-1.0)	14.8 (11.3-19.4)	1.3 (0.8-1.9)
2-4 times	824 (1.6)	1.3 (1.0-1.9)	0.7 (0.5-1.1)	2.2 (1.6-2.9)	0.7 (0.5-1.0)	3.3 (2.5-4.5)	0.8 (0.6-1.2)	7.3 (5.5-9.6)	1.0 (0.7-1.4)
One time	2303 (4.6)	1.3 (1.1-1.6)	0.9 (0.8-1.1)	2.1 (1.8-2.4)	1.0 (0.8-1.2)	2.9 (2.4-3.4)	1.1 (0.9-1.3)	4.8 (4.1-5.6)	1.2 (1.0-1.4)
Never	45990 (91.8)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Drugs									
At least 1x	4680 (9.3)	1.8 (1.5-2.1)	1.1 (0.9-1.4)	3.0 (2.5-3.4)	0.9 (0.8-1.1)	4.7 (4.1-5.5)	1.0 (0.8-1.2)	12.1 (10.5-14.0)	1.0 (0.8-1.2)
Never	45418 (90.7)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Note. The reference category for the dependent variable was "I have not gambled during the previous year." Numbers in bold are statistically significant ($p \leq .05$). In Model 1, predictor variables were entered into the model one at a time. In Model 2, all predictor variables were included in the model at the same time. In both models, grade level was adjusted.

Appendix B
Odds Ratios (ORs) and 95% Confidence Intervals (CIs) for Involvement in Problem Behavior among 14- to 16-Year-Old Girls (N = 50,676) in Relation to Gambling Frequency

Grade and problem behaviors	N (%)	Gambling frequency among girls					
		Less than monthly OR (CI)		Less than weekly		On 1-2 days per week	
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Grade level							
8 th grade	25179 (49.7)	0.6 (0.6-0.7)		0.6 (0.6-0.7)		0.7 (0.6-0.7)	
9 th grade	25497 (50.3)	1.0		1.0		1.0	
Problem behavior							
Truancy							
Over 3 days	1974 (4.1)	2.2 (1.9-2.4)	0.9 (0.8-1.1)	4.0 (3.5-4.6)	1.0 (0.8-1.2)	7.5 (6.2-9.0)	1.2 (0.9-1.4)
2-3 days	2560 (5.3)	1.9 (1.7-2.1)	0.9 (0.8-1.0)	3.4 (3.0-3.8)	1.1 (0.9-1.2)	5.0 (4.2-6.0)	1.2 (1.0-1.5)
1 day	5992 (12.5)	1.8 (1.7-1.9)	1.1 (1.0-1.2)	2.7 (2.5-2.9)	1.2 (1.1-1.3)	3.7 (3.3-4.3)	1.4 (1.2-1.6)
None	37465 (78.1)	1.0	1.0	1.0	1.0	1.0	1.0
Bullying							
Several times a week	642 (1.3)	0.8 (0.7-0.9)	0.8 (0.7-1.1)	1.1 (0.9-1.3)	1.6 (1.2-2.1)	1.7 (1.3-2.2)	2.0 (1.4-2.8)
Approximately 1x a week	1223 (2.4)	1.0 (0.9-1.1)	1.3 (1.1-1.5)	1.2 (1.0-1.4)	1.4 (1.1-1.7)	1.5 (1.2-1.9)	1.8 (1.4-2.4)
Less frequently	13486 (26.7)	1.1 (1.0-1.1)	1.3 (1.2-1.3)	1.2 (1.1-1.3)	1.5 (1.4-1.6)	1.4 (1.2-1.5)	1.6 (1.4-1.8)
Never	35231 (69.7)	1.0	1.0	1.0	1.0	1.0	1.0
Delinquency							
Yes	9172 (18.1)	2.6 (2.4-2.7)	1.4 (1.3-1.5)	4.5 (4.2-4.9)	1.7 (1.6-1.9)	6.6 (5.9-7.4)	1.8 (1.6-2.1)
No	41481 (81.9)	1.0	1.0	1.0	1.0	1.0	1.0
Smoking							
1x a day or more often	6829 (13.6)	4.3 (4.0-4.6)	1.8 (1.7-2.0)	12.4 (11.3-13.6)	3.5 (3.1-3.9)	28.4 (24.6-32.8)	5.7 (4.7-7.0)
1x a week or more often, not daily	2496 (5.0)	3.0 (2.7-3.3)	1.4 (1.3-1.6)	7.5 (6.6-8.5)	2.4 (2.1-2.8)	10.6 (8.6-13.1)	2.9 (2.3-3.7)
Less than 1x a week	4922 (9.8)	2.6 (2.5-2.8)	1.3 (1.2-1.4)	4.4 (3.9-4.8)	1.7 (1.5-1.9)	5.4 (4.5-6.6)	1.7 (1.4-2.2)
Have quit	6647 (13.2)	2.3 (2.1-2.4)	1.3 (1.2-1.4)	3.6 (3.2-3.9)	1.7 (1.5-1.9)	4.5 (3.7-5.4)	1.9 (1.6-2.4)
Do not smoke	29402 (58.5)	1.0	1.0	1.0	1.0	1.0	1.0
Using snuff							
Daily or occasionally	1283 (2.6)	3.6 (3.0-4.2)	1.5 (1.2-1.8)	7.7 (6.4-9.3)	1.8 (1.5-2.3)	17.2 (13.9-21.3)	2.8 (2.2-3.6)
Tried it 1x	3294 (6.5)	2.7 (2.5-3.0)	1.3 (1.1-1.4)	4.7 (4.2-5.2)	1.4 (1.2-1.6)	7.5 (6.5-8.7)	1.7 (1.4-2.0)
Never	45625 (90.9)	1.0	1.0	1.0	1.0	1.0	1.0

Appendix B. Continued.

Grade and problem behaviors	N (%)	Gambling frequency among girls							
		Less than monthly OR (CI)	Less than weekly	On 1-2 days per week	On 3-7 days per week				
Alcohol drinking									
1x a week or more often	2997 (5.9)	5.1 (4.6-5.6)	2.3 (2.0-2.7)	16.1 (14.1-18.4)	3.3 (2.7-4.1)	32.6 (26.6-39.9)	2.8 (2.0-3.9)	79.4 (62.8-100.3)	2.8 (1.7-4.4)
A couple of times per month	8738 (17.3)	4.5 (4.2-5.0)	2.4 (2.2-2.6)	10.6 (9.6-11.7)	3.1 (2.6-3.6)	16.9 (14.2-20.2)	2.8 (2.1-3.8)	15.9 (12.6-20.1)	2.4 (1.6-3.7)
Approx. 1x a month	6022 (11.9)	3.7 (3.5-4.0)	2.3 (2.0-2.5)	7.6 (6.8-8.5)	2.9 (2.5-3.4)	9.4 (7.7-11.5)	2.4 (1.8-3.2)	6.5 (4.9-8.6)	1.8 (1.2-2.8)
Less often	11538 (22.9)	2.8 (2.6-2.9)	2.1 (2.0-2.3)	4.0 (3.6-4.4)	2.3 (2.0-2.6)	4.0 (3.3-4.9)	1.8 (1.4-2.3)	3.0 (2.3-4.0)	1.4 (1.0-2.0)
Do not use	21138 (41.9)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Drunkness-related drinking									
1x a week or more often	1116 (2.2)	3.9 (3.3-4.6)	1.1 (0.8-1.3)	11.4 (9.4-14.0)	1.0 (0.8-1.4)	32.4 (25.4-41.4)	1.5 (1.0-2.2)	132.0 (104.3-167.0)	1.7 (1.0-2.7)
Approx. 1-2x per month	6691 (13.3)	3.8 (3.6-4.1)	1.2 (1.1-1.3)	9.1 (8.3-9.9)	1.3 (1.1-1.6)	16.5 (14.2-19.1)	1.4 (1.1-1.9)	19.7 (16.2-24.0)	1.3 (0.9-1.8)
Less often	13994 (27.8)	2.9 (2.8-3.1)	1.2 (1.1-1.3)	5.2 (4.8-5.6)	1.3 (1.2-1.5)	7.1 (6.1-8.1)	1.5 (1.2-1.8)	5.4 (4.4-6.6)	1.0 (0.7-1.4)
Never	28585 (56.7)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Alcohol and medicine for intoxication									
5x or more	897 (1.8)	2.2 (1.9-2.6)	0.8 (0.6-1.0)	3.5 (2.8-4.4)	0.7 (0.5-0.9)	8.1 (6.3-10.5)	0.7 (0.5-1.0)	43.5 (35.4-53.5)	0.7 (0.5-1.0)
2-4 times	1696 (3.4)	2.8 (2.5-3.2)	1.1 (0.9-1.2)	5.1 (4.4-5.9)	1.0 (0.8-1.2)	7.5 (6.2-9.1)	0.9 (0.7-1.2)	12.8 (10.2-15.9)	0.9 (0.6-1.2)
Once	3071 (6.1)	2.5 (2.3-2.7)	1.1 (1.0-1.2)	4.2 (3.7-4.6)	1.1 (0.9-1.2)	5.9 (5.0-6.9)	1.1 (0.9-1.3)	7.6 (6.3-9.3)	1.0 (0.8-1.3)
Never	44793 (88.8)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Medicine for intoxication									
5x or more	851 (1.7)	1.7 (1.4-2.1)	0.8 (0.6-0.9)	2.6 (2.0-3.2)	0.7 (0.6-1.0)	6.1 (4.7-7.9)	1.0 (0.7-1.5)	31.6 (25.8-38.8)	1.3 (0.9-2.0)
2-4 times	1248 (2.5)	2.2 (1.9-2.5)	0.9 (0.8-1.1)	3.5 (2.9-4.1)	0.9 (0.8-1.2)	4.7 (3.7-5.9)	0.9 (0.7-1.2)	7.0 (5.4-9.2)	0.8 (0.6-1.2)
Once	1805 (3.6)	1.8 (1.7-2.1)	0.9 (0.8-1.0)	2.9 (2.6-3.4)	0.9 (0.8-1.1)	3.7 (3.0-4.5)	0.9 (0.7-1.1)	5.8 (4.6-7.3)	1.1 (0.8-1.4)
Never	46502 (92.3)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Glue sniffing									
5x or more	592 (1.2)	2.1 (1.7-2.6)	1.1 (0.8-1.4)	3.4 (2.6-4.5)	1.0 (0.7-1.4)	5.2 (3.6-7.6)	0.8 (0.5-1.3)	50.5 (40.0-63.7)	2.1 (1.5-3.1)
2-4 times	1237 (2.5)	2.7 (2.3-3.0)	1.3 (1.1-1.5)	3.7 (3.1-4.4)	1.1 (0.9-1.4)	6.3 (5.0-7.8)	1.4 (1.1-1.8)	10.4 (8.1-13.4)	1.3 (1.0-1.8)
Once	2705 (5.4)	2.1 (2.0-2.3)	1.2 (1.1-1.3)	3.5 (3.1-3.9)	1.4 (1.2-1.6)	4.9 (4.1-5.7)	1.5 (1.2-1.8)	6.7 (5.5-8.2)	1.6 (1.3-2.0)
Never	45905 (91.0)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Drugs									
At least 1x	3349 (6.6)	2.4 (2.2-2.7)	0.9 (0.8-1.0)	4.5 (4.0-5.0)	0.9 (0.8-1.0)	7.7 (6.7-8.9)	1.0 (0.8-1.2)	21.5 (18.6-24.9)	1.2 (1.0-1.5)
Never	47102 (93.4)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Note. The reference category for the dependent variable was "I have not gambled during the previous year." Numbers in bold are statistically significant ($p \leq .05$). In Model 1, predictor variables were entered into the model one at a time. In Model 2, all predictor variables were included in the model at the same time. In both models, grade level was adjusted.

Exploring the Gray Areas: Senior Gamblers' Perceptions Of What Is and What Isn't Gambling

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Abstract

The basis of any health promotion or harm minimization initiative is effective engagement of the target audience. However, because “gambling” can be interpreted in a variety of ways, service providers, such as community educators and clinical practitioners, cannot always assume a shared understanding of the meaning of gambling with their clients. This paper aims to help reduce such discrepancies by highlighting conditions in which gambling is usually viewed as gambling by those engaged in the behavior and by describing scenarios that may be more ambiguous. Such awareness can help service providers to maximize engagement efforts while minimizing the stigma typically associated with gambling. Findings are based on secondary analyses of a study that examined pathways leading to late-life problematic gambling by using a grounded theory method. The results suggest that rational decision making may be compromised in otherwise nonvulnerable individuals.

Keywords: gambling, public health, engagement, education, awareness, screening

Résumé

Le fondement de toute initiative de promotion de la santé ou de découragement de pratiques nuisibles est la mobilisation efficace du public ciblé. Toutefois, parce que le « jeu » peut donner lieu à des interprétations variées, les fournisseurs de services comme les animateurs socio-éducatifs et les cliniciens ne peuvent supposer que leur compréhension de ce qu'est le jeu est toujours la même que celle de leurs clients. Le présent article vise à réduire de tels écarts en mettant en lumière les conditions dans lesquelles le jeu est habituellement perçu comme tel par les personnes qui s'y adonnent et en décrivant les scénarios qui peuvent être plus ambigus. Être conscients de ces éléments peut aider les fournisseurs de services à optimiser leurs efforts de mobilisation tout en minimisant la stigmatisation généralement associée au jeu. Les constatations de l'article reposent sur des analyses secondaires d'une étude portant sur les trajectoires menant à des problèmes de jeu tardifs effectuées à l'aide d'une

méthode théorique éprouvée. Les résultats laissent entendre que la capacité de prendre des décisions rationnelles peut être compromise chez des personnes qui autrement ne sont pas vulnérables.

Introduction

Effective engagement is a crucial foundation for all stages of intervention, from grassroots education, prevention, and awareness-raising campaigns, through to screening, service provision, and relapse prevention in treatment settings. Yet, what service providers consider to be “gambling” may not necessarily match the definitions used by their clients and by general community members, creating a potential communication barrier. Such discrepancies may not only lead to false negatives during screening, but may also prevent proper discussion of gambling altogether. Such a discussion requires recognition and shared agreement on the meaning of the activity taking place. Accordingly, if a common understanding cannot be forged from the start, any subsequent intervention can be compromised, diminishing the potential impact of the intervention effort. Although in Australia gambling generally refers to “the placing of a wager or bet in the form of money or something of value on the outcome of an uncertain event that may involve the elements of skill and chance” (Jackson, Goode, Smith, Anderson, & Thomas, 2006), what constitutes “skill” and “chance” may be an individual decision. If an activity is considered more skill based than luck based, it may be considered less of a gamble and vice versa. Consequently, a person may be actively and heavily gambling without recognizing their behavior. This is not necessarily an issue of denial, but one of meaning.

Indeed, ambiguity about what constitutes gambling is likely to increase. The merging of the worlds of videogames and gambling is already blurring the boundaries between gaming and gambling, with concerns that the former may groom people into the latter (King, Ejova, & Delfabbro, 2012). In addition, manufacturers of traditional land-based gaming technologies are moving to incorporate more perceived skill elements into their machine games in the hope of enhancing their competitive edge (Dreier, 2013). Such trends may escalate illusions of control and cognitive distortions among players (Myrseth, Brunborg, & Eidem, 2010), factors that are robustly linked with problematic gambling (Johansson, Grant, Kim, Odlaug, & Götestam, 2008; Monaghan, Blaszczyński, & Nower, 2008; Morasco, Weinstock, Ledgerwood, & Petry, 2007; Tavares, Zilberman, & el-Guebaly, 2003). Moreover, these trends may redefine activities so that those that were previously accepted as constituting gambling are now considered to be not gambling. One implication is that public education campaigns to raise awareness may fail to engage people who are most at risk of developing gambling problems because they may also

be less likely to pay attention to such messages if they do not perceive their behavior as gambling (Hirsch, 2000).

Several factors may promote a predisposition to biased views about what constitutes gambling. For instance, a person's life stage and experiences can influence how gambling is perceived. It is not uncommon for late-life recreational gamblers to view gambling as something therapeutic (Esterbrook, 2004), analgesic (Munro, Cox-Bishop, McVey, & Munro, 2003; Shen Ryan, Mui, & Cross, 2003), rejuvenating (Loroz, 2004), motivational (Norris & Tindale, 2006), liberating (O'Brien Cousins & Witcher, 2004), and bonding (Govoni, Frisch, & Johnson, 2001; Scull & Woolcock, 2005), as opposed to being gambling per se. Of note, older patrons are often made to feel so welcomed and looked after at gambling venues that these locations have been coined a "day care for the elderly" (Rivlin, 2004). Consequently, in such cases, gambling may be regarded as a pain reliever, an energy booster, a remedy, or a tool for independence, rather than as gambling. This view can be reinforced at the interpersonal level, where gambling may not be regarded as gambling if it is part of a family or cultural tradition, or is experienced as a fun group excursion (Feldman, Radermacher, Anderson, & Dickins, 2014; Katz, 2000; Norris & Tindale, 2006; Raylu & Oei, 2004). Thus, when gambling helps to meet certain needs, or fits into a conventional pattern, it can blend in with the norm and appear less like gambling. Conversely, the opposite may be true: If gambling personifies or represents something that threatens traditions or stirs up offensive sentiments (Rand & Light, 2007), it can be demonized and the stigma of engaging in it amplified, thereby sensitizing the gambling aspect of an activity. Accordingly, depending on the various ways in which intrinsic and extrinsic factors interact, the resulting gambling-related perceptions may continually evolve.

In an investigation into gambling and problem gambling in Pacific peoples, Bellringer et al. (2013) found distinctive views of what is and what is not gambling. Specifically, the researchers found that casino gambling, off-course betting at the Totalisator Agency Board, and housie (bingo) were generally considered gambling, whereas Lotto, scratchies, and raffles were typically not. This distinction primarily depended on whether the activity was regarded as beneficial to the community or family. If it was deemed beneficial, the activity was not considered gambling, but rather fund-raising, an "exchange of gifts," or something for a good cause (Bellringer, et al., 2013). Similarly, in Australian Aboriginal communities, communal gambling activities that help bring people together (such as card games) often have important social values and may be regarded as bonding opportunities rather than gambling per se. This perspective is common because the secondary benefits of gambling—such as enhanced social cohesion, alleviation of social problems and community tensions, stronger family ties, and redistribution of economic resources (Martin, 1993; McMillen & Donnelly, 2008)—can make gambling activities seem more advantageous than harmful. Although the introduction of commercial forms of gambling may have caused Western concepts of gambling to be incorporated into such activities, thereby changing the way they function and how they are perceived and experienced by communities (Breen, 2008; McMillen & Donnelly, 2008; Young et al., 2006), the notion of gambling still tends to

carry negative connotations. This perception suggests that in these contexts, use of the term “gambling” may be reserved for instances in which adverse consequences are experienced and acknowledged.

Perhaps it is these conflicting feelings that prompt some recreational gamblers to categorize gambling as being either “good,” or “bad” and “dangerous” (Hirsch, 2000). Specifically, the former refers to gambling for the purpose of supporting one’s sporting or social club or for charitable causes (Govoni et al., 2001; Southwell, Boreham, & Laffan, 2008; Young et al., 2006) and the latter to gambling that is neither about altruism nor enjoyment (Southwell et al., 2008). Such separate classifications, nevertheless, do not mean that the two do not become conflated. Individuals who start out gambling to support their local clubs may end up becoming increasingly involved in gambling from experiencing early big wins (Govoni et al., 2001; Williams, West, & Simpson, 2007), whereas those with no prior interest in gambling may come to rely on it as a way to escape from problems and negative emotions when circumstances change (Morasco et al., 2007; Munro et al., 2003). Thus, good gambling may in some circumstances inadvertently lead to bad gambling in such a way that the gambling aspect of an activity may not be felt and acknowledged until harm has been inflicted.

Legal and regulatory environments can also significantly shape perceptions of gambling. For instance, in Japan, where gambling is generally banned except for racehorse betting and certain motor sports (Organisation for Economic Co-operation and Development, 2014), pachinkos, which resemble slot machines, are not considered to be gambling because they are not legally defined as such. Similarly, although gambling is illegal in Germany, gaming machines prevail but are known instead as “amusement machines with prizes” (Ludwig, Kräplin, Braun, & Kraus, 2012). In Australia, electronic gaming machines (EGMs) located in hotels and clubs retain their name, but some of their counterparts located in casinos are known as “fully automated table games” (Dowling, 2009). A casino that caters exclusively to high rollers may no longer be just a casino, but a “VIP gaming facility” (Gardner, Whitbourn, & Glasgow, 2013). Such labels can play a vital role in framing how gambling activities are perceived, which in turn are reinforced by legal sanction, advertising, and marketing strategies (Thomas et al., 2012). In particular, vulnerable individuals who already hold positive views about their gambling involvement may have these biased views validated by systemic forces, significantly propelling the development of gambling-related problems.

Despite our knowledge of factors that can influence perceptions of gambling, the literature often portrays such perceptions as static, with individuals depicted as either possessing cognitive bias and distortions, or not possessing them. However, in practice, such lines are often less clear-cut: Resilient individuals are not necessarily always resilient in all circumstances. This paper aims to present the dynamics of gambling perceptions and their associated implications in older gamblers, so that service providers may gain insight into the nuances of gambling to improve their engagement approaches, tools, and materials. Older gamblers are the focus because unique life experiences, such as cumulative losses and restricted capacity to earn and replace lost income, may have a greater impact on them than on younger adults.

The damage done may be irreversible and even life threatening, as demonstrated in elevated suicide and suicidality rates among older problem and pathological gamblers (Nower & Blaszczynski, 2008; Yip, Tang, Ip, Law, & Watson, 2007).

Method

Participants

This study explored the perceptions of gambling in senior gamblers aged 55 years and older who reside in Victoria, Australia.

Materials and Procedure

Findings were based on secondary analyses of data obtained and analyzed by the grounded theory method, which essentially views subjective reality as a social construction that can vary in different circumstances (Charmaz, 2006). Because the purpose of the study was to understand participant perceptions, as opposed to determining whether or not such perceptions were accurate, no diagnostic tools were used. Such openness enabled a rich array of data to be gathered, including information obtained from verbatim transcripts, demographic questionnaires, casual conversations with participants (before and after audio recordings), observations, memos, and the reflective journal of one of the researchers. Included in the transcripts and memos were nonverbal information about body language, such as the participants' tone of voice, facial expressions, and reactions. Although primary data comprised transcripts of audio-recorded interviews, in several instances, more interesting information and insights into the participant's life and personality were revealed before or after the interviews were recorded, which may reflect the often inhibiting effect of recording (Rubin & Rubin, 1995). Consequently, information offered after completion of the formal interview recording process was neither dismissed nor discarded; rather, the researcher jotted these down and sought permission from participants to include them as materials for analysis.

The researcher in charge of recruitment (CT) placed advertisements in newspapers; was interviewed about the study at a seniors' community radio station; distributed project flyers at the city's casino, train stations, and public notice boards; and publicized the study in a gaming venue self-exclusion newsletter. The researcher was also approached and interviewed by several curious local journalists, who went on to write articles about the project, which helped to further raise awareness about the study. Other participants were recruited by word of mouth and snowballing from existing participants. As a consequence of this range of recruitment strategies, an array of sample characteristics was obtained, and some of the participants were related to one another.

Potential participants were first screened over the phone to ensure suitability. Inclusion criteria were as follows: (a) older adult aged 55 years or more; (b) considered him- or herself to gamble regularly (at least once per fortnight), or had experienced later-life gambling issues (subjective perceptions); and (c) was able to understand and consent to

the research project. Exclusion criteria included being a younger adult, the presence of health conditions that might hinder participation in an hour-long interview, and the inability to provide free and informed consent. Selected participants were then informed that they had the choice of either being interviewed in the privacy of their own homes or in a room at a family counseling center located in the inner city area. Each interview lasted between 60 and 90 min and gained increasing focus as more themes emerged. To extract special circumstances that might alter gambling-related perceptions, we asked probing questions, such as “Why is this gambling, but not that?” and “How come back then it was gambling but now it isn’t?” As a token of appreciation for their time, participants were offered a \$20 department store gift card at the end of the interview. Participants were also given the contact number for the free state-government-funded gambling counseling service in case the interview process triggered a need to speak to a professional counselor. Transcribed materials were subsequently mailed to participants unless they specifically declined. Full details of the method can be found in (Tira & Jackson, 2013).

Results

Thirty-one older adults aged 56 to 85 years were recruited. The average age of the sample was 67 years, with 17 participants aged 65 years or more and 14 participants below 65 years. Thirty of the participants were interviewed face to face, and one participant emailed her story. Of the total sample, 22 were female, eight were married, 16 were divorced or separated, five were widowed, and two were never married. Six participants were employed full time or part time and 25 were retired. Twenty-five were receiving pensions and six were self-funded retirees or were employed. Fifteen participants described their ethnicity as Australian; three each as Yugoslavian, Greek, or Turkish; two each as Italian or English; and one each as Dutch, Finnish, or British. Apart from three participants who were from three different country regions of Victoria, the rest were recruited from metropolitan regions.

Coincidentally, the sample contained an almost equal split between those who were actively experiencing gambling problems (whether seeking help or not) and those who were not experiencing any problems at the time of the interview. Table 1 summarizes the sample’s gambling characteristics.

All of the current and ex-problem gamblers in the study reported discovering gaming machines in the later part of their lives, many only upon retirement. Most of the female participants reported either limited or no gambling experience prior to taking up EGM play. Consequently, gambling was often understood in relation to other things and even functioned as a representation of something else—an idea, a way of living, an impression, a philosophy, or a set of skills that could be learned and honed—as opposed to a concrete act. For this reason, the word “usually” is part of the following section’s heading to emphasize this elusive nature and to indicate that there are dimensions beyond the scope of the current investigation. Still, despite the ambiguity, interesting insights were uncovered as to what could make an activity seem more or less like gambling at a moment in time.

Table 1
Summary of the Sample's Gambling Characteristics (n = 31)

Gambling presentations	n	Gambling history
Non-treatment-seeking, current PGs	7	All individuals had late EGM uptake
Treatment-seeking, recovering PGs	8	All individuals had late EGM uptake
Binge gamblers (intermittent issues)	4	2 late uptake, 2 lifetime
Regular, non-problem gamblers	9	1 lifetime, regular gambler; 8 late-onset, regular gamblers
"Professional" gamblers	2	Both individuals were lifetime gamblers
Self-recovered, late-onset PG	1	Late uptake and late PG onset

Note. PG = problem gambler; EGM = electronic gaming machine.

When Was Gambling Usually Gambling?

When a bet is placed on an uncertain outcome and there is a possibility of reward.

Interestingly, when asked what they thought gambling was, many participants preferred to give examples rather than a definition. In particular, casino-type games were often endorsed. This was particularly true among those with limited gambling experience and/or those who were never that interested in gambling before they started gambling (particularly slot machines). Consequently, these participants tended to refer to media advertising as a point of reference. A few participants even asked the researcher at initial phone contact if such-and-such was considered gambling (e.g., if the researcher meant casino-type games only). It seemed that for those who started gambling late in life, only simple (in the sense of easier to learn to play) and personally “interesting” forms of gambling were taken note of, whereas other forms of gambling appeared to be filtered away, as illustrated in the example below:

“I don’t really know much about any other...forms of gambling really [apart from gaming machines]... The casino, you know, you see them...playing, um... roulette... that stuff...oh, it just doesn’t really...interest me at all...”
 (83-year-old female)

Nonetheless, almost all participants mentioned entertainment, luck, and reward prospects when considering gambling, which helped to consolidate the concept of when gambling was usually gambling for the current sample.

For lotteries, the views from the sample were extreme. Among the less experienced or late-life participants, some were uncertain whether to classify lotteries as gambling, some did not consider them gambling, and others appeared to overlook lotteries altogether when considering gambling. Conversely, those with extensive lifetime gambling experiences appeared to be more confident with the topic of gambling, had more to say, and tended to consider betting on the lotteries as gambling. One called it “the crack cocaine of gambling,” a term usually associated

with EGMs. He explained that this was because he knew of many lottery buyers who had been buying the same numbers for decades and could not stop for fear their combinations would win when they ceased making their purchase. He then added that he had come across many cases in which dedicated lottery buyers had instant fatal heart attacks when they failed to buy their usual tickets just once—and it won. Thus, it appeared that his exposure to lottery-related harm had sensitized him to the risks involved in the activity, whereas for others who did not have such exposure and who had limited experience with gambling products, the risks and potential harm seemed to go unnoticed.

Only one participant asserted that stock market investment was definitely a form of gambling. This lifetime and self-professed “professional” gambler explained that this was because he had to approach stock market investments the same way that he placed bets on horses. He also claimed that the feelings that he derived from winning at the stock market were identical to when he won at the Melbourne Cup, and he expressed that his shares were like Makybe Diva (a famous racehorse and the highest stakes earner in Australasian horse racing history). He proceeded to state another aspect of gambling that broadened the concept:

“Play, gamble – same word to me.” (62-year-old male)

Because the words “play” and “gamble” were interchangeable for this participant, in his case, the notion of gambling was broad. Nevertheless, it highlighted that for some people, an activity is considered gambling when it requires comparable speculation, preparation, and investment—and offers similar rewards—as subjectively less ambiguous forms of gambling do.

In contrast, another self-declared professional gambler in the sample, a 58-year-old man, stressed the luck aspect of gambling: Anything that occurred by pure chance was considered gambling. Still another participant did not use the word “professional” to describe himself, but nonetheless reported succeeding at gambling enough to enable him to own three plots of land by the age of 21 and afterward to buy his house and support his family when his children were growing up. This participant had more specific criteria for gambling:

“Horses... it’s 85% luck, 15% of skill.
Cards... ... it’s the knowledge of your opponents’ ... weaknesses.
I don’t like machines.” (65-year-old male)

This participant went on to say that he did not really consider betting on gaming machines as gambling because, to him, the odds and probability of winning were already fixed. From his perspective, if one was deemed to be losing from the start and no amount of skill could make a difference to the outcome of a bet, then that is not true gambling. In contrast, for another participant, gambling appeared to conjure up

negative images of a gambler. Consequently, she repeatedly emphasized that she was not gambling on the slot machines because she was not a gambler.

“The only reason I’m going there [venue], is because of that [to socialize]. Not because I’m a gambler. I only go there...because of the isolation, because being old age... I, I... I’m against gambling. Totally against.” (57-year-old female)

As it appeared that to pursue this topic further would considerably agitate the participant, no attempt was made to further explore it. This case highlights that for some, gambling is not gambling if it does not agree with one’s image of a gambler.

When Was Gambling Not Quite Gambling?

Apart from the two themes that indirectly emerged while we explored what made gambling *gambling* for the participants, several other conditions directly emerged that exempted activities that the participants would normally consider as gambling.

When you are not that serious about the activity itself. When gambling activities occurred in a light-hearted manner or in a more casual context, they were often not regarded as gambling. The most apparent demonstration of this was from a participant who, although he played gaming machines prior to retirement, did not really consider himself as gambling back then, but considered himself to be gambling now because the *contexts* and *intentions* of his gambling had changed.

“[Back then]... it was not, uh, really like gamble. It was passing time, something to do... But now, here, every day...every corner we got machines. And two times a week, we [self & friends] go bingo [but] we don’t call that gambling, because we only spend \$2 [chuckles]” (75-year-old male)

This quote exhibits two determinants of gambling: the *purpose* of carrying out the activity and the *size* of the bet. Because in the past, the participant’s intention was not to gamble per se but rather to kill time, he did not consider that to be gambling. However, now that he felt *surrounded* by gaming machines and felt that the density and high accessibility of these products *compelled* him to bet on them, he considered himself to be gambling at present. In addition, because his bingo-related expenditure was regarded as being much more trivial (\$2) than his slot machine-related expenditures, he did not consider his involvement with the former as gambling, but considered the latter to be so.

When it has a special place in your heart. One’s enduring passion for a game may elevate the activity above less esteemed activities. For instance, for the following participant who had a lifelong passion for horses, betting on horses was not gambling, but betting on gaming machines was, because the latter did not spring

from genuine fondness for the game; it sprang from a need to escape from her life's stresses and was causing her problems.

“Oh, horse-racing I've done that all my life. It's uh... more of a hobby. I consider horse-racing to be more of an interest and a hobby. And I, uh, have a love of horses...gone to the meetings all my life... I like that.”
(67-year-old female)

Accordingly, to consider betting on horses as gambling would have placed it on an equal level with gaming machines, which she detested and called a “scourge to the community.” Consequently, she differentiated one from the other by referring to the former as a “hobby” and the latter as “gambling.”

When it is part of who you are and helps you preserve your identity. Similarly, one participant indicated that when his gambling investments were heavier because the sole purpose was to make money, it was more of a gamble back then. However, now that he carried out the same activities only as something to do for fun and as a way of maintaining a previous lifestyle or routine, he did not really consider his current gambling involvement as gambling. Moreover, because gambling was such an integral part of his life, to the point that he claimed to feel lost if he ceased engaging with it, gambling was not really gambling anymore, but a way for him to sustain his self-image and create a sense of continuity in his life.

When its costs are comparable to other leisure activities. Some participants considered gambling activities as merely another way of spending money for pleasure, akin to going to the cinema or attending concerts. As such, gambling was not really gambling, but an alternative affordable leisure.

“I don't look at it as gambling. I know it is, but I don't look at it as gambling. If I go to the pictures...and spend...money at the pictures...and it's over in an hour... I can go to the pokies and I can have...a meal and a drink and...talk to people.” (73-year-old female)

This case demonstrates two levels of awareness and perceptual conflicts: The *act* was registered as gambling, but the *perception* was not. Thus, for this participant, if in a given situation these two cognitive layers do not overlap, then that activity is not really gambling. This highlights that for some, *synchronicity* of thought and action must be established in order for gambling to be gambling.

When it occurs in conjunction with other forms of entertainment or promotions. As local entertainment venues often offer gambling facilities, or local gambling venues often offer non-gambling-related entertainment, the social and entertainment aspects of the venues could sometimes override the awareness of gambling. This appeared to be particularly true for participants who enjoyed spending time at gambling venues

and engaging in various activities such as singing, dancing, and performance watching. Consequently, gambling was considered as part of that lifestyle or part of that entertainment package, somewhat like a bonus. Nonetheless, during periods when this alternative entertainment took place at the venues, or when friends were present at the venues, too, the participants reportedly spent less time on the gaming machines and vice versa. Interestingly, this was true both for those who gambled alone and for a couple in the sample who normally frequented the venues together, but nonetheless sounded tired of each other's company. In addition, if bets were placed with promotional coupons, or bets were placed just to earn enough points to claim certain special offers, then these were not considered as gambling. Consequently, one participant saw herself as taking advantage of the promotions rather than gambling and took pride that she made the most of her venue membership.

When it was not funded by your hard-earned money. Similarly, when bets were placed with money won at gambling, gambling was not considered to be really gambling. Thus, if current gambling was funded by previous wins, any subsequent gambling expenditures funded by this source were also not considered gambling. For the following participant, who funded some of her gaming machine sessions with previous lottery winnings, that amount of money did not even feel real to her.

"I always looked at it as not my money. It just... dropped out of the sky. So, um, I'm—I'm playing with... .. TattsLotto money, not my money. I didn't earn it." (72-year-old female)

Accordingly, in this case, gambling was not gambling because the money invested was unearned. In addition, because she had envisioned her betting money as having "dropped out of the sky," her gambling participation was equally dream-like, which ties in with the next theme.

When the gambling experience does not feel "real." Many participants reported feeling considerably "sucked in" while playing gaming machines and lost touch with "the real world" during play; accordingly, for some, gambling expenditures sometimes became part of that other world, too. Indeed, for the following participant, gambling was not gambling whenever it felt like she was merely playing a computer game.

"I'm really, *really* careful with money...[but] when I draw money out at the pokies... and get a 50 dollar note or two 50 dollar notes... It's not like money. It's, it's like monopoly, it's like play money. It's— Doesn't tell my head it's real money. It's real money there [before putting into the machines], but as soon as you press that button, it's not. It's just a computer game." (68-year-old female)

In this case, the ambience of the environment and gaming machine features considerably removed the participant's connection with reality, which significantly compromised her judgment and awareness of her expenditures. Consequently, whatever amount of money that this participant put into the machines, it was merely play money at the time and its value was felt only when she stepped outside of the venue.

When the venue feels like your second home. For some participants, particularly those who felt isolated and lonely and lacked much prior experience with gambling, the friendliness and hospitality of venue staff were often internalized and personalized, rendering the act of going to gamble more like a visit to one's friends or a second home.

“[Venue staff always greets] 'Hello, hello, how are you today?' Everybody knows you... the manager knows you... Yeah, made me feel welcomed... You get a free... lemon squash or a coffee... if you've been there a little while...” (72-year-old female)

It therefore appeared that for some, internal mood states were prone to being combined with external stimuli to create an ever-changing story about gambling, the venue, and the associated experiences, which created an entirely different world for the participants.

Discussion

This study uncovered several pertinent themes on the dynamics of gambling-related perceptions, as summarized in Table 2.

First, we identified that the participants generally defined gambling as when a bet is placed on an uncertain outcome and there is a possibility of reward, which complements the official definition of gambling in Australia (Neal, Delfabbro, & O'Neal, 2005). Although a subtheme was that gambling is an activity requiring comparable speculation, preparation, and investment and offering similar rewards (in this case stock market speculations) as subjectively less ambiguous forms of gambling, this definition was endorsed by only one participant in the sample. As such, this category of gambling definitions was rather weak. We then explored and extracted conditions that overrode the agreed-upon consensus, revealing numerous exceptions, suggesting that the common understanding may be more uncommon than initially appeared. Indeed, Table 2 clearly illustrates that the exceptions to gambling not being gambling overwhelmingly outweighed the consensus on when gambling was usually gambling. The implications of this finding are multifold.

In particular, the range of exceptions to gambling emphasizes the importance of not assuming a common understanding, especially when conducting public education campaigns and screening for gambling problems. Indeed, because gambling still tends to carry negative connotations and most participants preferred to name

Table 2
Summary of Gambling Related Perceptions

When is gambling usually gambling?	When is gambling is not quite gambling?
Generally unanimous endorsement When a bet is placed on an uncertain outcome and there is a possibility of reward.	If you cannot influence or need no skills to influence the uncertain outcome. If it is incongruent with your image of a gambler.
Limited endorsement When an activity requires comparable speculation, preparation, and investment—as well as offering similar rewards—to subjectively less ambiguous forms of gambling.	When you are not that serious about the activity itself. When it has a special place in your heart. When it is part of who you are and helps you preserve your identity. When its costs are comparable to other leisure activities. When it occurs in conjunction with other forms of entertainment or promotions. When it was not funded by your hard-earned money. When the gambling experience does not feel "real." When the venue feels like your second home.

examples of gambling activities rather than trying to define it, it may be more effective for service providers to apply a similar approach when engaging a community audience or clients. Specifically, when addressing clients and community groups, rather than using the word “gambling” or asking “Do you gamble?”, it may be more effective to list specific activities of interest and to ask whether the audience participates in them. In this way, individuals who do not consider themselves to be gambling—but nonetheless participate in such activities—can be persuaded to pay attention to the messages being delivered and not to instinctively dismiss them as irrelevant. Such a seemingly small change in approach can be powerful, considering that practically all educational messages tend to assume and rely on a mutual understanding of the term “gambling” (Victorian Responsible Gambling Foundation, 2015).

Apart from overt descriptive words, equally important to consider are covert *symbolisms* (Blumer, 1969) of gambling and what constitutes a gambler. As the current results suggest, an activity normally considered to be gambling may be exempted from being regarded as such if it does not fit in with the subjective views of a gambler. Because some of the participants were from culturally and linguistically diverse backgrounds, and three in the sample were residents of three different country regions, factors such as cultural/ethnic background, life and family histories, and location of residence could have shaped their reported perceptions and expanded the gray areas around gambling. Indeed, culture can not only influence the perception of gambling and problem gambling (Raylu & Oei, 2004), but it can also

manipulate risk perceptions in general (Gibbs van Brunschot, 2009), including the basic foundation of subjective *construals*, or how individuals perceive, comprehend, and interpret the world around them (Markus & Kitayama, 1991). Accordingly, effective educational campaigns necessitate attention and sensitivity to cultural relativism (Johnson, 2007) as a whole, not merely in the form of ethnicity, religion, spirituality (Clarke, Abbott, et al., 2006; Clarke, Tse, et al., 2006), or age brackets (Dickinson & Schissel, 2005; Gubrium, 2001), but in the various *dimensions of culture* (Hofstede, 2001) and the way they interact and influence one another. This attention to cultural dimensions allows an appreciation and anticipation of how varying cultures may influence the way messages are received and interpreted. Therefore, when engagement becomes challenging, or when educational messages seem to be misinterpreted, resisted, or dismissed, rather than trying to drill the same messages harder, it may be more effective to step back, consider where the person is coming from, and then unpack and reframe the content in such a way so as to accommodate different values and mindsets.

Although the exploration of gambling-related perceptions is not novel, an overwhelming majority of existing findings come from population-based surveys skewed either towards adults as a whole or younger populations. Consequently, any link between age and gambling-related perceptions tends to focus on developmental differences (e.g., adolescents vs. young adults), gender differences, and/or changes across the life span (Calado, Alexandre, & Griffiths, 2014; Dickinson & Schissel, 2005; Dickson, Derevensky, & Gupta, 2002, 2004; Fabiansson, 2008; Gibbs van Brunschot, 2009; Hraba & Lee, 1996; Welte, Barnes, Tidwell, & Hoffman, 2010). However, in late adulthood, when development has reached full maturity and life experiences, challenges, and wisdoms accumulate, factors such as life stories, narratives, and the search for meaning are likely to be more relevant and dominate how events are perceived (Gubrium, 2001; Kenyon, 2002; Kenyon, Clark, & de Vries, 2001; Randall, 2001). Consequently, the uniqueness of late-life gambling-related perceptions (McNeilly & Burke, 2000, 2001, 2002) has yet to be properly captured and capitalized on, particularly for the purpose of communicating messages about risk (Finucane, 2008). A key strength of the current study, therefore, is to fill part of this gap in knowledge, as well as the gap in understanding the perspective of non-treatment-seeking gamblers.

Findings from the current study have brought an interesting twist to our general understanding of problem gambling-related risks. The dominant empirical assumption and trend in the field has so far been that individuals with the highest problematic gambling risks are those with the highest frequency and breadth of gambling (Currie et al., 2006; Lund, 2007; McCreedy, Mann, Zhao, & Eves, 2008; Welte, Barnes, Wieczorek, Tidwell, & Parker, 2004). Consequently, problem gambling profiles tend to conjure up images of younger males who gamble in a variety of forms, who are non-white, who are less educated, and who possess multiple mood, anxiety, and personality disorders (Johansson, et al., 2008; Pietrzak, Morasco, Blanco, Grant, & Petry, 2007; Hare, 2009). In the current study, we found, paradoxically, risks associated with limited gambling experience and exposure,

thereby introducing a different profile of vulnerable gamblers. For one thing, the way that many participants in the sample (specifically those with late-life and limited experience in gambling) preferred to name examples of gambling rather than defining it may not merely reflect the influence of mainstream and mass media portrayals of gambling, but may also indicate a reliance on such sources for points of reference. This was particularly evident in individuals who differentiated gambling from non-gambling as casino versus non-casino-type games on the basis of personal observations of television commercials. These participants were also more likely to be highly impressionable, easily charmed by gambling-related incentives, and prone to internalizing and personalizing good customer service as proof of personal likeability or importance. As a result, this group was prone to discounting the gambling aspect of their activities if they viewed their gambling venues as their second home, if their gambling took place in conjunction with other forms of entertainment or promotions, or if their involvement did not fit in with their personal visions of a gambler.

In contrast, those with prior gambling experience and exposure were more likely to be aware of the act of gambling, yet on another level may not have really registered this to be the case. The reason may be that a particular type of gambling held a special place in their heart, so that putting their favorite form of gambling on par with other forms may discredit their passionate hobby. It may also be because the contexts of gambling occurred in casual settings, so that the act of gambling was not taken seriously, or the gambling activity was viewed as merely another affordable way of spending money for entertainment. Nevertheless, the starkest contrast emerged from the professional or successful gamblers, who were found to not even consider an activity as gambling if skills were deemed as both ineffective and redundant for influencing the outcome of a bet (chiefly slot machines). Although this finding may arguably reflect the way in which some gamblers distinguish professionalism from amateurism, as opposed to gambling per se, it indicates that those with more gambling experience did not pay attention or attach special meaning to the extraneous factors associated with gambling that their less experienced counterparts appeared to place considerable importance on, such as good customer service, the welcoming nature of venues, or the free beverages and snacks offered at venues. Consequently, it seems that, to a certain extent, having more experience with gambling may be a protective factor, as it may mean that one has more insight into the gambling industry, its products and services, and the associated effects.

In conclusion, despite the general limitations associated with qualitative investigations and a small sample size, this study has highlighted how gambling-related perceptions can vary under different circumstances (and hence may be readily manipulated), as well as how these perceptions can be riddled with many contradictions and exceptions, in some cases even entailing elaborate hierarchies of differentiation. These factors can function as crucial mediators in controlled gambling and its sustainability, affecting consumer protection and awareness. The discrepancies therefore need to be kept in mind when engaging clients and consumers in public education, awareness-raising campaigns, and screening initiatives. At the

same time, it is also important to be creative and make the most of these discrepancies when communicating messages about risk so as to help minimize the stigma associated with both gambling and problematic gambling.

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Characteristics of Good Poker Players

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Abstract

Poker is characterized as a “mixed” game: a game that includes both skill and chance components. But what individual differences are characteristic of skilled poker players? No previous study has sought to evaluate the full scope of characteristics contributing to playing skill. The purpose of this study was to fill this void by attempting to comprehensively examine the individual characteristics associated with good poker players. Results from a sample of undergraduate students and community members ($n = 100$) showed that good players are more likely to be male, to have lower susceptibility to gambling fallacies, a greater tolerance for financial risk, superior social information processing skills, and less openness to aesthetic and imaginative experience. Evidence from this study also indicates that having sufficient levels of most of these attributes is more important for poker success than having exceptional strength in just one or two of these areas.

Keywords: poker, skill, individual differences, gambling, intelligence

Résumé

Le poker est un jeu « mixte » : il repose à la fois sur le hasard et l’habileté des joueurs. Mais quels sont les traits personnels qui caractérisent les joueurs habiles? Aucune étude n’a encore cherché à évaluer l’ensemble des caractéristiques qui contribuent à l’habileté des joueurs. L’objectif de la présente recherche était donc de combler ce manque en tentant de proposer un examen exhaustif des caractéristiques personnelles associées aux bons joueurs de poker. Les résultats de l’étude, qui portait sur un échantillon composé d’étudiants de premier cycle et de membres de la collectivité ($n = 100$), ont montré qu’un bon joueur est plus susceptible d’être un homme, d’être peu enclin à l’illusion du joueur, d’avoir une tolérance élevée aux risques financiers et d’être peu ouvert aux expériences esthétiques et d’imagination. Les résultats indiquent également que pour réussir au poker il est plus important de posséder la plupart de ces caractéristiques à un degré suffisant que d’en posséder une ou deux à un degré exceptionnellement élevé.

Introduction

Poker is identified as a “mixed” game. A mixed game is one in which the outcomes are determined by a combination of skill and chance—regardless of the relative contribution of either. Whether poker is predominated by skill or by chance is debated within both the scientific and legal literature. Attention devoted to the relative contribution of skill in poker is an important issue, as it has practical relevance for the legal standing of the game in relation to gambling and tax revenue laws.

As skill is a component of poker that contributes to the determination of game outcomes, empirical investigation of the traits indicative of skilled poker players is also justifiable. Which individual differences are characteristic of skilled poker players? No previous study has sought to evaluate the full scope of characteristics presupposed to contribute to playing skill. However, some previous empirical investigations have shed light on the nature of poker players more generally.

Demographics

It is well established that poker players predominantly comprise young adult males who report higher rates of alcohol use than do other gambling populations (i.e., non-poker playing; Dannewitz & Weatherly, 2007; Meinz et al., 2012; Oliveira & Silva, 2001; Shead, Hodgins, & Scharf, 2008). However, beyond the research on these general demographic characteristics, there is no literature available regarding whether certain demographic characteristics are associated with superior poker skill.

Quantitative/Statistical Skill

As would be expected, better players have been shown to make more statistically optimal poker-related decisions. For example, St. Germain and Tenenbaum (2011) found that better decision-making processes, leading to higher expected value—the average amount a player can expect to win or lose on an individual bet—were consistently demonstrated by more expert players and that these players incorporated more situation-relevant cues during decision making than did novice players.

Experience¹

Palomäki, Laakasuo, and Salmela (2012) concluded that more experienced players make more mathematically justified poker decisions. Similarly, two studies by Linnet showed that in more experienced players, probability estimation (i.e., the potential of hands winning) was superior to that in inexperienced players (Linnet et al., 2012; Linnet, Gebauer, Shaffer, Mouridsen, & Møller, 2010).

¹Experienced players may not be more skilled. Any inconsistencies in terminology used (e.g., good player, experienced, skilled, etc.) in the Introduction is attributable to accurate representation of previous literature.

While it may well be the case that ability tends to increase with experience, there are some situations where it does not. One study found that in a sample of experienced players, those who were also classified as pathological gamblers had decision-making skills that were comparable to those of inexperienced players (Linnet et al., 2012). It should be pointed out that a potential gender confound exists in these studies. Most notably, Linnet et al.'s (2010) experienced sample was composed solely of males, whereas the inexperienced sample consisted solely of females. Palomäki et al.'s (2013) study analyzed predominantly males, with females comprising only 16% of their sample.

General Intelligence

Wechsler (1944) defined intelligence as the “global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment” (p. 3). There has yet to be an empirical investigation of the relationship between poker skill and general intelligence. Some poker bloggers, however, suggest that skill in poker requires greater intelligence (e.g., see Badger, n.d.; Pinson, n.d.), wherein intelligence is described as the ability to use multidimensional thinking and/or critical thinking. Whether the suggested superior cognitive abilities asserted by poker bloggers can in fact be empirically validated remains to be seen. Although it is not postulated herein that *superior* intelligence is necessary for poker skill, it remains a possibility that general intelligence does play a role in poker skill attainment.

Social Skills/Intelligence

Social intelligence has been shown to be a unique factor, distinct from general intelligence (Ford & Tisak, 1983). Social intelligence is another area that seems likely to play a role in poker playing skill. It certainly is the ability most endorsed in popular culture as being necessary for successful poker playing. Social intelligence includes one's tendency to attend to social information and to process information observed in the social environment, as well as being capable of controlling the social information delivered via one's own behaviour (Silvera, Martinussen, & Dahl, 2001). In the literature, studies of poker players have provided support for the necessity of social intelligence in successful poker playing. Bellin (2002), for example, notes that players often introduce fake “tells” in attempts to fool opponents (e.g., feigned excitement suggesting a good hand, when the hand is actually weak). On a related note, one study has shown that the best “poker face” may be one that conveys trustworthiness rather than neutrality (Schlicht, Shimojo, Camerer, Battaglia, & Nakayama, 2010). Schlicht et al. (2010) showed that players more often folded to a bluffer who exhibited facial characteristics associated with trustworthiness than to a bluffer who had a neutral facial expression. Wilson (2003) states that both the ability to deceive and the ability to recognize deception are crucial skills that aid in successful poker playing.

Opponent modeling is the act of perceiving and interpreting opponent behaviours and adjusting one's own strategy on the basis of this information (McCormack & Griffiths, 2011). McCormack and Griffiths (2011), in a qualitative study, found that

the professional players ($n = 4$) created more accurate opponent models than did recreational players ($n = 5$). Castaldo (2007), in an interview with a professional female player, found that she would change playing strategies (e.g., choosing to bluff more or less) depending on her perception of her opponents' attitudes towards her as a female player. Slepian, Young, Rutchick, and Ambady (2013) found that experienced players were able to accurately rate players' hand strength at above-chance levels, based merely on arm movements used when the player was placing bets (i.e., chips) into the centre of the table. Thus, abilities captured under the umbrella of social intelligence, such as those used for opponent modeling, also appear to contribute to the skill set of a successful poker player.

Personality and Risk Taking

Personality traits may also differentiate good and poor players. Palomäki et al. (2013) found that greater self-evaluation, less rumination, and greater emotional control occurred more frequently in their sample of experienced players. Greater self-evaluation and less rumination is suggestive of lower levels of the personality trait neuroticism. Greater emotional control lends itself to more logically sound decision making. Browne (1989) also concluded, via an observational study, that better players demonstrate greater emotional stability, as evidenced by their staying "off tilt." To be "on tilt" is to lose one's temper and begin to make playing decisions on the basis of emotion. Another observational study found that winners were more gregarious than losers (Martinez & Lafranchi, 1969), and Brown and Mitchell (2010) found that aggressive players were more likely to be extraverted.

Barrault and Varescon (2013) noted high sensation seeking among online poker players. McCormack and Griffiths (2011) identified lower risk taking and more self-discipline in professional players as compared with recreational players (i.e., professional players expressed that they were less likely to chase losses). Similarly, Siler (2010) noted greater "risk neutrality" associated with successful play. Risk neutrality is evidenced when players consistently bet when the circumstances of the hand/round (their own cards, perception of opponents' hand strength, etc.) suggest positive expected value. It is possible that simply attending to expected value facilitates greater risk taking (i.e., aggression), which is empirically associated with more successful play. Therefore, the risk taking demonstrated by better players is best seen as *calculated* rather than reckless.

Findings related to personality must be seen with healthy skepticism, as some of the methodologies used are less than sound. For example, Brown and Mitchell (2010) defined aggressive players simply as those individuals who played three or more of 10 hands observed. Other studies (e.g., Palomäki et al., 2013) provide results that implicate personality differences but do not contain methodologies that objectively assess personality. Rather, conclusions regarding individual differences in self-control, for example, stem from qualitative judgements.

Other Differences

Three other studies have examined characteristics of poker players. One study identified higher working memory capacity in their sample of better players (Meinz et al., 2012). The other two studies reported a significant association between gambling fallacies and problem gambling among poker players (MacKay, 2012; Mitrovic & Brown, 2009).

Individual Differences Summary

Relatively little research has been reported on the characteristics differentiating good poker players from poor poker players. Existing findings tentatively indicate that in addition to better statistical knowledge about poker, the successful poker player tends to have more playing experience, as well as higher social intelligence, greater emotional control, and better working memory.

Study Goals

The goal of the current study is to begin to fill this void by attempting to more comprehensively and rigorously examine the individual characteristics indicative of skilled poker players. Specifically, the current study seeks to ascertain whether poker skill is significantly related to (a) demographic characteristics (age, gender, race/ethnicity, educational level); (b) educational achievement (i.e., grade point average [GPA]); (c) general intelligence; (d) working memory; (e) general quantitative ability; (f) resistance to gambling fallacies; (g) social intelligence; (h) problem gambling status; (i) risk perception and tolerance; and (j) personality. The findings of the present study may also inform the debate regarding the legal standing of poker, the debate regarding the taxation of poker players' profits, and the legitimacy of training programs designed to improve poker skills. Finally, by identifying the individual differences that are characteristic of skilled poker players—a novel undertaking in and of itself—this research addresses a significant gap in the scientific literature.

Method

Participants

The final study sample consisted of 100 participants recruited from both University of Lethbridge undergraduate students (82%) and Lethbridge community members (18%). The sample, predominantly Caucasian (80%), consisted of 54 males and 46 females and had a mean age of 23.48 ($SD = 6.45$). To recruit the undergraduate participants, we placed an advertisement on the university's psychology participant pool website, soliciting participants familiar with Texas Hold'em to participate in a study investigating the factors that predict poker playing ability. Participants recruited via this system received a 2% psychology course credit for their participation, as indicated on their consent form. Community member participants, whose consent forms did not discuss course credit, were recruited via word of mouth.

Word-of-mouth recruitment was used to ensure a broader demographic sample (e.g., age, playing experience, education level), as well as a greater variation of skill level within the sample. The consent form for both sets of participants indicated that, depending on their demonstrated poker skill, they would receive between \$0 and \$100 in the form of a Visa gift card. This was done to increase motivation and provide ecological validity for the task. This study was reviewed and approved by the University of Lethbridge Human Subject Research Committee.

Materials

Each participant engaged in a total of 12 tasks, including a detailed collection of demographic information, a virtual Poker Playing Assessment, our experimental Poker Skills Measure, and a series of individual difference measures. Table 1 itemizes all experimental tasks undertaken, task order by condition (an attempt was made to counter-balance the presentation of some tasks), and approximate time to complete each task. All experimental tasks and measures are described in the following subsections.

Demographics and Poker Playing Survey. The Demographics and Poker Playing Survey was designed specifically for this study. Information was collected on age, sex, ethnicity, years of education, and university major. For students, their GPA was also collected (maximum = 4.0). In addition, we collected years of poker

Table 1
Experimental Tasks, Task Times, and Task Order by Condition

Task	Time (min)	Condition 1 (<i>n</i> = 24)	Condition 2 (<i>n</i> = 24)	Condition 3 (<i>n</i> = 27)	Condition 4 (<i>n</i> = 25)
Consent	3	S1-1	S1-1	S1-1	S1-1
Demographics	3	S1-2	S1-9	S2-1	S2-8
Stanford-Binet Matrices*	15	S1-3	S1-8	S2-2	S2-7
Digit span	3	S1-4	S1-7	S2-3	S2-6
Stanford-Binet Equation Building*	15	S1-5	S1-6	S2-4	S2-5
Poker Quantitative ^a	5	S1-6	S1-5	S2-5	S2-4
Gambling Fallacies Measure	5	S1-7	S1-4	S2-6	S2-3
Tromso Social Intelligence Scale	5	S1-8	S1-3	S2-7	S2-2
PSM1	22	S1-9	S1-2	S2-8	S2-1
PSM2 ^b		S2-1	S2-5	S1-2	S1-6
PPGM ^c	4	S2-2	S2-4	S1-3	S2-5
DOSPRT ^d	7	S2-3	S2-3	S1-4	S2-4
NEO-Personality Inventory	25	S2-4	S2-2	S1-5	S2-3
Poker Playing Assessment	15	S2-5	S2-1	S1-6	S2-2

Note. Time = approximate time, in minutes, to complete each experimental task. Conditions 1 through 4 present task orders; *n* = number of participants included in final sample by condition. Condition task orders are represented by S = Session number (1 or 2) and task number (e.g., S2-3 = Session 2, 3rd task completed). Tasks marked with an asterisk (*) were timed tasks; thus the time to complete is the maximum allotted time, rather than an approximate time.

^aThis 10-item paper-and-pencil test of poker quantitative skill is not used or mentioned in the subsequent analyses, as it was thought to be too closely related to the Poker Skills Measure (PSM). ^bPSM2 was administered for test-retest purposes and was included for only 50 participants. ^cProblem and Pathological Gambling Measure. ^dDomain-Specific Risk-Taking Scale.

playing experience, typical poker playing habits (i.e., online vs. live play; with friends/family vs. strangers), and self-rating of playing ability (assessed by making a vertical mark along a horizontal line with anchoring endpoints described as *novice* and *expert* and converting the mark to a score from 0 to 100).

General intelligence. Participants completed the Matrices subtest of the Stanford-Binet Intelligence Scale, 4th edition (Thorndike, Hagen, & Sattler, 1986). The 26 items in this subscale from the Abstract/Visual Reasoning Area of the Stanford-Binet provide a pictorial matrix of either four or nine items with one cell blank. The person uses his or her reasoning ability to determine the pattern or principle contained in the matrix so as to determine which of the four options provided best fits the missing cell. The Matrices subtest is normally untimed, but participants in the present study were given 15 min to complete it. The Matrices subtest is modeled after the Raven Progressive Matrices, which is intended to be a culture-free measure of general intelligence (*g*). Factor analytic studies have confirmed that the Stanford-Binet Matrices is a good measure of *g* (accounting for 55% of the variance) and has a Pearson correlation of .78 with the overall Stanford-Binet Composite IQ (Sattler, 1988).

Digit span task. This digit span task (Della Sala, Foley, Beschin, Allerhand, & Logie, 2010) is intended to be a measure of working memory capacity. For this task, the experimenter reads a list of numbers with a 1-s delay between each number. Participants are then required to repeat the list back. Six lists per digit span length are used, and testing ends when a participant repeats fewer than five of the six lists correctly. Participants' scores are recorded as the greatest span that the person was able to accurately reproduce.

Quantitative ability. The 18-item Equation Building subtest is from the Quantitative Reasoning Area of the Stanford-Binet Intelligence Scale, 4th edition (Thorndike et al., 1986). This subtest requires respondents to use given numbers and numerical operators to create a mathematical equation. For example, given the following information: "2 3 5 = +," respondents would create the true mathematical statement: "2 + 3 = 5." Although this test is normally untimed, participants were again given 15 min to complete it. This measure assesses respondents' working understanding of numerical operations and is intended to be a measure of crystallized quantitative ability (Sattler, 1988). The Equation Building subtest has a test-retest reliability of .91 (Sattler, 1988).

Gambling Fallacies Measure. The Gambling Fallacies Measure (Williams, 2003) is a 10-item questionnaire developed to assess erroneous beliefs associated with gambling. By assessing respondents' ability to take statistical probabilities and the random nature of most gambling games into account, this measure assesses respondents' tendency to succumb to (or to resist) gambling fallacies, including the illusion of control, the perception of personal luck, and the gambler's fallacy. Internal reliability is low (Cronbach's $\alpha = .51$), which reflects the fact these 10 questions assess a wide range of different fallacies. However, the 1-month test-retest

reliability of this measure is relatively good ($r = .70$). Its validity is established by its significant correlation with problem gambling status, gambling frequency, number of gambling activities engaged in, and paranormal beliefs (Williams, 2003).

Tromso Social Intelligence Scale (TSIS). The TSIS measures three components of social intelligence: Social Information Processing (SP), Social Skills (SK), and Social Awareness (SA; Silvera et al., 2001). Silvera et al. (2001, Study 3) report the internal reliabilities for each subscale (SP, SK, and SA) to be $\alpha = .79, .85$, and $.72$, respectively. The criterion and construct validity of this scale has also been established (Silvera et al., 2001, Study 1; Tayfun & Cetin, 2009). The TSIS consists of 21 items and yields three scores for each of the three components of social intelligence. A social intelligence composite score is also derived.

Poker Skills Measure (PSM). The PSM (Leonard, Staples, & Williams, 2014) measures respondents' current poker skill level. For each of the 35 items in this measure, respondents are presented with a poker scenario for which they must decide which playing action is most appropriate. The scenarios presented tend to increase in complexity from Scenario 1 to Scenario 35. The scenarios vary in terms of which stage of the game is occurring (pre-flop, flop, turn, river), the documented actions or inactions of the other players at the table, the number of other players remaining in the hand (two to six), the amount that has been bet, and the described playing style of the opponents (tight/loose; aggressive/passive). Each question is presented on a single page with a colour pictorial and text. Participants are also provided with a glossary of Texas Hold'em terminology, as well as a tutorial page that itemizes each pictorial component (e.g., folded cards, cards in play, pot and stack sizes). Respondents are provided with three response actions for each scenario. The PSM has a test re-test reliability of $.82$ and high internal consistency (Cronbach's $\alpha = .79$); its validity is established by its significant correlation with objective measures of poker playing performance.

Problem and Pathological Gambling Measure (PPGM). The PPGM measures respondents' self-reported gambling behaviour over the past 12 months. This instrument contains questions pertaining to all areas of potential harm related to gambling and has been shown to be better able to detect problem gamblers who are in denial than are other commonly used measures (Williams & Volberg, 2010, 2014). The PPGM yields high classification accuracy (sensitivity = 94.44%, specificity = 99.81%), minimizing both false positives and false negatives, which is confirmed by high agreement ($k = .93$) between the instrument and clinical assessment (Williams & Volberg, 2010, 2014).

Domain-Specific Risk-Taking (Adult) Scale (DOSPERT), Risk Perception subscale. The DOSPERT Scale Part II (Blais & Weber, 2006) is a 30-item scale that assesses risk tolerance for decisions in five domains: financial (separate subscales for investing vs. gambling), health/safety, recreational, ethical, and social. The reported internal consistency for these domains is adequate at $.74, .83, .74, .79$, and $.83$, respectively (Blais & Weber, 2006). The DOSPERT Part II Scale used herein is the short version of the original DOSPERT for which convergent and discriminant validity were established

and for which internal consistency values similar to those reported for the long version were obtained (Weber, Blais, & Betz, 2002).

NEO Personality Inventory Revised Edition (NEO-PI-R). The NEO-PI-R provides a measure of the five personality domains, Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness, as well as six subfacets associated with each of the five domains (Costa & McCrae, 1992a). Thus, there are 30 facets in all. Scores for each domain are the summation of relevant facet scores. The NEO-PI-R is currently the dominant instrument in the assessment of personality. Its validity, concurrent and discriminant, has been well established in both normal and clinical populations (Costa & McCrae, 1992a). Internal reliability of the domain scores are high, ranging from .86 to .92, and the internal reliabilities of the facets range from .58 to .82 (Costa & McCrae, 1992b).

Poker Playing Assessment.² For this assessment, participants were asked to play 30 hands in a virtual game of no limit Texas Hold'em against artificial intelligence (AI) players (maximum of five AI players) on a laptop computer. *No-Limit Hold'em Cash Game Version 1* (2011) was used, as this program (a) uses a random number generator to determine cards dealt; (b) allows for automatic buy-ins (e.g., if a player loses all of his or her money, the account is automatically replenished so that the person can continue playing); and (c) allows for the manipulation of both the skill level and the style of play of the AI players. It was statistically determined that playing 30 hands reduced the overall pre-flop equity variance between players to 4%. With a maximum of 4% pre-flop equity variance, it was thought that no participant would be unduly advantaged or disadvantaged by playing so few hands. This program did not permit the predetermined selection of cards dealt so as to altogether eliminate variability in the pre-flop equity between players. Also unclear is the extent to which 30 hands were sufficient to (a) eliminate the variability in the strength of the post-flop cards between participants and (b) eliminate the variability in the strength of the opponents' hands between participants. We suspect that many more than 30 hands would have been needed.

The five AI opponents had a wide range of skill levels and playing styles to simulate what often happens in social games of poker. More specifically, there were two loose/aggressive players, two tight/aggressive players, and one loose/weak player. "Loose" players are defined as people who play more hands and tend to continue with weaker hands; hence, they do not often fold. "Tight" players play fewer hands and tend not to continue with weaker hands; hence, they often fold. An "aggressive" player is more likely to bet and raise compared with a "passive" player, who is more likely to check and call. "Loose/weak" players differ from loose/passive players in that (a) they often will not fold prior to all community cards being dealt and (b) they tend not to adjust their playing style (e.g., play more aggressively when holding a good hand).

²Because this assessment was used to evaluate unrelated working hypotheses, the results associated with it are not discussed herein.

After 30 hands, participants' net profit, number of hands folded pre-flop, percentage of hands won, percentage of hands raised pre-flop, and percentage of hands bet on the flop were recorded. For the purpose of participant remuneration, a composite score for the Poker Playing Assessment was derived by averaging the rank earned on four variables: net profit, hands won, aggression (bets) at pre-flop, aggression (bets) at the flop. Betting aggression is generally correlated with skill level because increasing the price to stay in a round (a) has a tendency to induce players with stronger cards to fold and/or (b) increases the payoff from players who remain in the round with weaker cards (Potter van Loon, van den Assem, & van Dolder, 2015; Siler, 2010). In general, skilled poker players have also been documented to play fewer hands ("playing tight") than poorer players, reflective of their better understanding that only a minority of hands have a good chance of winning (Siler, 2010). So as not to penalize better players for this tendency, the percentage of hands won was calculated as follows: (total number of hands won divided by total number of hands played) multiplied by 100. Participant remuneration was based on this composite ranking averaged with participant ranking on the PSM.

Procedure

Each participant was tested individually, in two 1-hr sessions, spaced 1 week apart. Written informed consent was obtained prior to the commencement of Session 1. Two word-of-mouth participants were not of the age of majority at the time of data collection. Written informed consent was given by these participants' parents and written informed assent given by the participants. Verbal indication of continued consent was sought before engaging in Session 2. As part of written informed consent, in addition to the 2% course credit indicated for undergraduate participants, all participants were informed that they could potentially be eligible for financial remuneration. It was explained that their eligibility for receiving monetary compensation would be based on their ranking, compared with the other participants, on a composite score of both poker playing measures (the PSM and the Poker Playing Assessment). They were reminded of this fact when we introduced the PSM and the Poker Playing Assessment.

After informed consent was obtained, participants were assigned to one of four test order conditions. Four different experimental task orders were used so as to reduce order effects such as fatigue while also preventing potential priming effects (if, for example, the PSM and the Poker Playing Assessment were completed in succession). Instructions preceded each experimental task and were delivered either verbally by the experimenter, or they were included in the written instructions provided with the task. The consent form and all measurements were completed in a paper-and-pencil format with the exception of the Poker Playing Assessment, which was conducted on a 17-inch Acer laptop computer in full-screen mode.

Upon completion of the second session, participants were thanked and debriefed, and they were told that remuneration would follow after all data were collected. The top poker performer received \$100, those ranked 2 to 10 received \$50 each, those ranked 11 to 40 received \$30 each, those ranked 41 to 75 received \$25 each, and those ranked below 75 received \$0.

Results

Data Screening and Cleaning

Less than 0.005% of data were missing. Of these, most missing data points were from the NEO personality questionnaire. Missing values from the NEO were replaced with the individual's mean score for the personality facet from which the data point was missing. Two participants each left one answer blank on the Gambling Fallacies Measure. Scores for these participants were calculated out of nine rather than 10. Twelve percent of data was missing from the GPA scores, due either to participants not being students or to participants not knowing or reporting their GPA. This variable was omitted from the multivariate analysis because of the large proportion of missing data.

For regression analysis, all variables were assessed for skew above or below 0.4 and for outliers, with outliers defined as having a standard score of ± 3.29 . Outliers were detected in age, total playing experience, the PPGM composite, the NEO domains Neuroticism and Agreeableness, the NEO facets Activity level (Extraversion domain) and Tendermindedness (Agreeableness domain), and the Social skills subsection of the TSIS. Outliers accounted for less than 0.9% of all data, and all outliers were determined to be accurate data points because participants whose age and playing experience contributed to the detection of outliers in these variables were known to the experimenter. Outliers in all other variables were considered accurate because, despite being statistically rare, they were not errors in data entry or impossible figures (e.g., scores beyond the response endpoints on a given survey). Thus, original values were retained (and reported) for the descriptive statistics. An inverse transformation corrected for outliers and non-normality of the PPGM composite variable. As no transformation adequately corrected for skew and outliers in these variables, the variables were winsorized. Winsorization significantly reduced the skew of Agreeableness, Activity level, and Social Skills. Winsorization removed the outliers and attenuated the skew of Neuroticism, Tendermindedness, age, and total playing experience). Of final note, a point biserial correlation was conducted for the dichotomous variables of gender (male; female) and ethnicity (Caucasian; non-Caucasian).

Univariate Results

Pearson's r correlations were calculated between PSM scores and all the individual difference measures. As can be seen in Table 2, surprisingly few variables were significantly associated with PSM scores, and the magnitude of the correlation was low for the few that were.

The relationship between poker skill and all five NEO personality domains (Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness) was near zero. Similarly, there was no significant correlation with general intelligence

Table 2
Full Sample Assessment Scores and Correlation with Poker Skills Measure

Assessment	Scores ($n = 100$)				Pearson's r	FDR
	M	SD	Min	Max		
Gender	.54		0	1	.38**	.00
Ethnicity	.80		0	1	.007	
Age	23.28	6.45	17	57	.17	
Grade point average	3.14	0.55	1.50	4.00	-.01	
Years of education	14.58	2.07	10.64	20	-.04	
Poker experience	4.68	5.13	0	40	.26**	.05
Digit span	5.6	1.02	4	8	.16	
SB Matrices	55.19	7.29	41	68	.13	
SB Equation Building	57.65	10.45	35	76	.04	
Gambling Fallacies Measure	7.36	1.52	3	10	.26**	.03
Risk Perception						
Ethical	30.00	4.96	15	40	.06	
Monetary	29.34	5.11	16	40	-.25*	.03
Gambling only	17.05	3.41	7	21	-.21*	.05
Investing only	12.29	3.09	6	21	-.19	
Health/Safety	27.11	6.09	11	39	-.05	
Recreational	23.14	6.76	8	38	.09	
Social	16.42	4.92	7	26	-.001	
Social IQ						
Social Information Processing	5.21	0.69	3.29	7	.27**	.03
Social Skills	4.81	.07	2.43	6.14	.12	
Social Awareness	5.12	.82	3	7	.10	
Social IQ composite	105.94	12.41	78	137	.20*	.05
PPGM total score ^a	.045	1.06	0	5	-.24*	.04
Personality domains and facets						
Extraversion	3.56	0.44	2.58	4.58	-.05	
Assertiveness	3.25	0.64	1.75	4.75	-.006	
Activity level	3.27	0.56	1.38	4.50	-.02	
Excitement seeking	3.81	0.54	2.5	5.00	-.05	
Gregariousness	3.36	0.72	1.62	5.00	.03	
Positive emotions	3.79	0.67	1.88	5.00	-.06	
Warmth	3.88	0.57	2.62	5.00	-.06	
Agreeableness	3.37	0.45	1.58	4.29	-.05	
Trust	3.27	0.71	1.38	5.00	.06	
Straightforwardness	3.21	0.59	1.62	4.50	-.15	
Altruism	4.00	0.56	2.25	5.00	-.09	
Meekness	2.96	0.67	1.12	4.50	.08	
Modesty	3.23	0.73	1.00	4.88	-.15	
Tendermindedness	3.56	0.56	1.62	4.75	.06	
Conscientiousness	3.48	0.41	2.54	4.60	-.06	
Competence	3.55	0.42	2.62	4.5	.10	
Achievement	3.50	0.55	2.12	4.75	-.12	
Discipline	3.53	0.71	2.00	5.00	-.08	
Order	3.36	0.56	2.12	4.50	-.07	
Dutifulness	3.74	0.51	2.62	5.00	-.05	
Deliberation	3.21	0.68	1.62	4.50	-.01	

Table 2. Continued

Assessment	Scores ($n = 100$)				Pearson's r	FDR
	M	SD	Min	Max		
Neuroticism	2.79	0.45	1.29	3.65	-.02	
Anxiety	3.01	0.66	1.12	4.50	-.07	
Hostility	2.71	0.63	1.25	4.62	-.08	
Depression	2.68	0.69	1.12	4.25	.02	
Self-consciousness	2.77	0.67	1.00	4.38	.05	
Impulsivity	3.33	0.56	2.00	4.50	.05	
Vulnerability	2.25	0.52	1.00	3.62	-.07	
Openness	3.54	0.43	2.56	4.54	-.11	
Aesthetics	3.22	0.82	1.38	5.00	-.20*	.05
Fantasy	3.44	0.70	1.50	5.00	-.23*	.04
Feelings	3.64	0.64	2.25	5.00	-.07	
Ideas	3.72	0.68	2.00	5.00	.11	
Actions	3.31	0.42	2.38	4.25	-.09	
Values	3.88	0.53	2.25	5.00	.09	

Note. Min = lowest score detected; Max = highest score in sample; FDR = false discovery rate adjusted probability; SB = Stanford-Binet; PPGM = Problem and Pathological Gambling Measure.

^a Correlation calculated with inverse transformation of PPGM scores.

* $p \leq .05$. ** $p \leq .01$.

(Stanford-Binet Matrices), working memory capacity (digit span), quantitative skills (Stanford-Binet Equation Building), GPA, age, or years of education.

However, PSM had a significant negative relationship with two personality facets from the Openness domain: Aesthetics ($r = -.20$, $p = .04$) and Fantasy ($r = -.23$, $p = .02$). This result is a reflection that appreciation of art and beauty, as well as having a rich fantasy life and imagination, are both negatively related to poker skill.

Poker skill was also significantly related to lower levels of gambling fallacies ($r = .26$, $p < .01$; higher scores on the GFM indicate greater resistance to gambling fallacies). This result implies that the behaviour of good poker players is more strongly guided by the statistical probabilities involved rather than by hunches, beliefs, and other erroneous notions.

On the DOSPERT, poker skill was also negatively related to a perception that engaging in gambling ($r = -.21$, $p = .04$) or financial investment ($r = -.19$, $p = .06$) constituted a significant risk. The overall correlation with the Monetary scale was also significant ($r = -.25$, $p < .01$).

A significant positive relationship was obtained between poker skill and the Information Processing section of the TSIS ($r = .27$, $p < .01$), indicating higher levels of social information processing among skilled players.

Of final note, a significant relationship was established between poker skill and an inverse transformation of the PPGM composite score ($r = -.24$, $p = .02$). This result

indicates that problem gambling symptomatology is greater among more skilled poker players.

Multivariate Results

Multiple univariate correlations capitalize on the chance occurrence of significance. In addition, they do not indicate the unique contribution of each variable to poker skill. Thus, a multiple regression was also undertaken. Univariate outliers and skew were corrected as previously explained. A number of variables were excluded so as to eliminate singularity and/or multicollinearity, as well as to reduce the overall number of independent variables in light of the relatively small sample size of 100. More specifically, the following variables were not included in the multiple regression: social intelligence composite score, all subfacets of each of the personality domains, the Extraversion domain, and the two subareas of the Monetary section of the DOSPERT. GPA was also excluded because 12% of the data was missing. All other variables were included. No multivariate outliers were found as assessed by Mahalanobis distance ($\chi^2 \geq 49.7$). All other variables were entered simultaneously. The poker skill index (PSM score) was significantly related to the combination of individual difference measures, $F(22, 77) = 2.60, p = .001$. The adjusted *R*-squared value was .26, indicating that in this sample, 26% of the variance in the poker skill scores can be accounted for by the combination of these individual differences. Table 3 displays the unstandardized and standardized regression coefficients, as well as the semi-partial squared correlations. Variables are listed in order of largest to lowest standardized regression coefficient. Only two variables contributed significantly to the prediction of higher PSM scores: Social Information Processing and gender. However, four additional variables approached significance: scores on the Gambling Fallacies Measure ($p = .07$), age ($p = .09$), and both the Financial subscale ($p = .09$) and the Ethical subscale ($p = .07$) of the DOSPERT.

Highest Skill Cases

The multiple regression analysis identified several variables that are generally associated with skill levels, but these variables do not indicate whether having strength in all of these attributes is required for individual poker success, or whether having strength in any one or more would be sufficient. Thus, a final analysis examined the consistency of individual attributes among the highest skilled players in the sample: those with PSM scores greater than 2 SDs above the mean PSM score. Four participants fit the criteria for this analysis of having PSM scores greater than 2 SDs above the mean; their scores were 32, 32, 29, and 29.

The scores of each case participant, as well as the mean scores of the whole sample, can be seen in Table 4. Variables where all four players scored above or all scored below the average are in bold.

This table illustrates that, as expected, the four skilled players all had higher than average self-rated poker ability, played fewer hands, and had higher flop aggression.

Table 3
Multiple Regression Results

	Regression Coefficients (B)	Standardized Regression Coefficients (β)	Squared Semi- Partial Correlations (sr_i^2)
Social Information Processing	2.21	0.27*	0.03
Gender	2.74	0.25*	0.04
Age	0.25	0.21	0.02
Risk - Ethical	0.24	0.21	0.03
Gambling Fallacies Measure	0.68	0.18	0.02
Risk - Financial	-0.19	-0.18	0.02
Risk - Health/Safety	-0.15	-0.17	0.01
Years of education	-0.41	-0.15	0.02
Neuroticism	1.67	0.14	<0.01
Openness	-1.75	-0.13	0.01
PPGM	-7.06	-0.13	0.01
Conscientiousness	-1.43	-0.11	<0.01
Stanford-Binet Matrices	0.07	0.09	<0.01
Playing experience (years)	0.11	0.07	<0.01
Digit span	0.38	0.07	<0.01
Risk - Recreational	0.05	0.07	<0.01
Agreeableness	-0.62	-0.05	<0.01
Social Awareness	0.29	0.04	<0.01
Ethnicity	-0.54	-0.04	<0.01
Stanford-Binet Equation Building	0.02	0.03	<0.01
Social Skills	0.18	0.02	<0.01
Risk - Social	0.02	0.01	<0.01
Constant	-0.39		

Note. PPGM = Problem and Pathological Gambling Measure.

* $p \leq 0.05$.

The other variables where all four players were consistently different from average were male gender, higher intelligence, greater resistance to gambling fallacies, lower perception of risk involved in gambling and investing, better social information processing, better social skills, lower modesty, lower openness, and lower aesthetic appreciation. The fact that the highest skilled players consistently scored higher or consistently scored lower than most people on these variables contributed to these variables being identified as statistically important in both the univariate and multivariate analyses. Despite this obvious confound, however, (a) the consistency in these attributes across the four players, (b) the fact that virtually all of these attributes were previously identified in either the multivariate and/or univariate analysis, and (c) the low magnitude of these univariate and multivariate correlations suggests that having sufficient levels of most of these attributes is more important for poker success than having exceptional strength in just one or two of these areas.

Discussion

The current study was conducted to comprehensively examine the individual characteristics indicative of good poker players. First, we found that age, race/

Table 4
Highest Skill Participant Scores Versus Total Sample Scores

Assessment	Sample Scores (<i>n</i> = 100)		Case Scores			
	<i>M</i>	<i>SD</i>	Case 1	Case 2	Case 3	Case 4
PSM	17.63	5.57	29	29	32	32
Age	23.28	6.45	23	23	20	22
Gender ^a			M	M	M	M
Ethnicity ^b			C	C	C	C
Self-rated poker ability (%)	33.42	21.15	68	87	65	67
Playing experience (years)	4.68	5.13	2.5	10	7	3
Digit span	5.6	1.02	4	6	7	7
Stanford-Binet Equation Building	57.65	10.45	70	46	56	72
Stanford-Binet Matrices	55.19	7.29	60	64	60	60
Gambling Fallacies Measure	7.36	1.52	8	8	9	10
Risk Perception						
Ethical	30.00	4.96	28	31	30	33
Financial	29.34	5.11	22	19	26	20
Gambling only	17.05	3.41	10	10	16	13
Investment only	12.29	3.09	12	9	10	7
Health/Safety	27.11	6.09	25	27	31	16
Recreational	23.14	6.76	26	35	21	17
Social	16.42	4.92	18	9	15	23
Social IQ						
Social Information Processing	5.21	0.69	5.43	7.00	6.57	5.71
Social skills	4.81	.07	4.86	6.14	5.86	5.29
Social Awareness	5.12	.82	3.71	6.43	5.86	5.29
Composite Social IQ	15.14	1.78	13.90	19.57	18.29	16.29
Composite PPGM	.045	1.06	2	3	0	3
Personality domains and facets						
Extraversion	3.56	0.44	3.21	3.56	3.71	3.88
Assertiveness	3.25	0.64	3.25	3.13	4.38	3.13
Activity level	3.27	0.56	2.13	3.25	4.25	3.5
Excitement seeking	3.81	0.54	3.88	2.88	3.63	4.38
Gregariousness	3.36	0.72	3.00	3.63	3.38	3.89
Positive emotions	3.79	0.67	3.38	4.00	3.25	4.63
Warmth	3.88	0.57	3.63	4.50	3.38	3.75
Agreeableness	3.37	0.45	2.50	3.92	2.83	3.63
Trust	3.27	0.71	2.50	4.75	3.25	3.38
Straightforwardness	3.21	0.59	2.00	3.63	2.38	3.13
Altruism	4.00	0.56	2.50	4.88	3.00	4.50
Meekness	2.96	0.67	2.13	3.38	2.38	3.50
Modesty	3.23	0.73	2.50	3.13	2.13	2.88
Tendermindedness	3.56	0.56	3.38	3.75	3.88	3.38
Conscientiousness	3.48	0.41	2.58	3.71	4.21	2.88
Competence	3.55	0.42	3.25	3.63	4.38	3.63
Achievement	3.50	0.55	2.63	3.75	4.25	2.75
Discipline	3.53	0.71	2.00	3.75	4.88	3.00
Order	3.36	0.56	2.38	3.50	4.25	2.63
Dutifulness	3.74	0.51	2.75	4.13	4.25	3.13
Deliberation	3.21	0.68	2.50	3.50	3.25	2.13

Table 4. Continued

Assessment	Sample Scores ($n = 100$)		Case Scores			
	<i>M</i>	<i>SD</i>	Case 1	Case 2	Case 3	Case 4
Neuroticism	2.79	0.45	2.89	2.65	2.60	2.60
Anxiety	3.01	0.66	3.00	3.13	2.63	2.25
Hostility	2.71	0.63	3.00	1.63	3.13	2.13
Depression	2.68	0.69	2.50	2.75	2.25	2.00
Self-consciousness	2.77	0.67	3.25	2.38	2.75	2.63
Impulsivity	3.33	0.56	3.50	4.00	3.25	4.38
Vulnerability	2.25	0.52	2.13	2.00	1.63	2.25
Openness	3.54	0.43	3.52	3.48	3.15	3.48
Aesthetics	3.22	0.82	3.13	2.63	2.13	2.88
Fantasy	3.44	0.70	3.50	3.75	2.13	3.50
Feelings	3.64	0.64	3.50	4.38	3.50	2.75
Ideas	3.72	0.68	4.63	2.00	4.13	4.25
Actions	3.31	0.42	3.13	3.75	2.88	3.38
Values	3.88	0.53	3.25	4.38	4.13	4.13

Note. PSM = Poker Skills Measure; PPGM = Problem and Pathological Gambling Measure. Total sample scores were compared with case scores, which are the scores of the four participants who scored at least 2 SDs above the group mean on the PSM. Variables where all four players scored above or all scored below the average are in bold.

^a M = Male. Total sample included 54 males and 46 females.

^b C = Caucasian. Total sample included 80 Caucasians.

ethnicity, educational level, and educational achievement were not significantly correlated with poker playing skill. None of these variables had a strong theoretical basis for expecting them to be associated with poker skill, and so the failure to find a relationship was not unexpected.

More surprising is the fact that being male was significantly and consistently related to poker skill. Although most professional poker players are male, we presume that cultural attributes associated with male gender (e.g., aggression), rather than biological attributes of male sex, facilitated success. Being female certainly does not preclude one from being an excellent player, as there are several well-known professional female poker players. Nonetheless, as poker remains a male-dominated game, it is also possible that females—despite knowing how to play, and even playing well—tend to devote less time or attention to the game to hone their skill and perhaps have a less competitive drive to win at the game.

We also found general intelligence to have little or no relationship to poker skill level or poker skill attainment. Higher intelligence was never postulated as a necessary attribute (and certainly does not appear to be a preeminent feature among the world's best poker players). Thus, it is not surprising that high intelligence was not strongly related to poker skill, although it is still possible that at least average or above average levels are required.

More surprising is the failure to find a relationship between quantitative ability and poker skill. As poker is recognized to be a game in which mathematical ability is

necessary, this finding may seem counterintuitive. There are two possible explanations for this finding. First, when one reviews the types of calculations required in the game of poker, it becomes evident that much of the math is relatively simple. In determining the likelihood of winning, for the most part, a poker player (a) simply adds up the number of remaining cards in the undealt deck that could complete the hand being created, (b) judges the likelihood that these cards will appear in the five community cards, and (c) is familiar with the strength of that particular hand if it does appear. Thus, the quantitative abilities necessary for poker skill may not demand a high level of mathematical ability. Second, poker skill was consistently associated with low levels of gambling fallacies. Many gambling fallacies hinge on the misunderstanding of statistics. The fact that better poker players are more resistant to fallacies suggests that they understand the basic tenets of statistics. Understanding statistics, however, is both a specific and a learned ability. Thus, it is possible that better poker players have attained a greater understanding of the specific mathematical calculations and statistics necessary for successful poker playing without necessarily increasing their general quantitative skills. Put another way, although exceptional quantitative skills may not be necessary to poker success, basic quantitative ability and adherence to poker-specific statistical probabilities is essential.

One component of social intelligence was consistently found to be significantly related to PSM scores: social information processing. High scores on this component of social intelligence speak to an individual's ability to accurately interpret the behaviour of others. This finding supports previous research that indicates that better players make mental models of opponents (Castaldo, 2007; McCormack & Griffiths, 2011; Wilson, 2003) and, at least in part, use this information to direct their own playing strategy. That the relationship detected between PSM scores and this component of social intelligence was only moderate, and that no other component of social intelligence was found to significantly relate to poker skill, indicates, however, that high social intelligence is neither essential nor sufficient in the making of a skilled poker player.

Working memory capacity was a significant predictor of poker performance in one prior study (Meinz et al., 2012). The current study findings did not indicate any relationship between working memory, evaluated by a digit span task, and poker skill, nor was there a consistent trend, higher or lower, in the working memory capacity of the four high PSM scorers in comparison to the whole sample. Thus, it does not appear that working memory capacity has any important bearing on poker skill level or poker skill attainment, although it is always possible that working memory evaluated by different means would reveal results similar to those of previous research (e.g., Meinz et al., 2012, used one verbal and one spatial complex span task).

Previous research regarding risk perception and tolerance found that better poker players have a greater tolerance for poker-specific risk taking (i.e., betting/raising; Siler, 2010). In the current study, risk perception was assessed across five domains: health/

safety, recreational, social, ethical, and financial. Findings from the current study add support for, and extend, previous findings. Better poker players demonstrated greater tolerance for all financial risk, rather than only for gambling-specific financial risk. Importantly, no other significant relationships were detected between poker skill and risk perception or tolerance. This finding indicates that despite the greater tolerance for financial risk, better poker players are not more tolerant of risk in general.

Previous studies indicated that better players had traits indicative of extraversion such as gregariousness (Martinez & Lafranchi, 1969) and sensation seeking (Barrault & Varescon, 2013) and that better players were lower in traits presumably associated with neuroticism such as rumination (Palomäki et al., 2013). In the current study, however, no relationships between PSM scores and personality domains or facets were found that would support previous research claims. In fact, with two exceptions, there was virtually no association between any aspect of personality and poker skill. The two exceptions to this finding were the significant negative relationships detected between poker skill and two personality facets of the Openness domain: Aesthetics and Fantasy. Low scores for the Fantasy personality facet are indicative of individuals who prefer practicality and realism. Individuals who score low on the personality facet Aesthetics are not swayed by art and beauty. It could be that the tendency of better players towards realism, both in the avoidance of fantasy and of art and beauty, aids their poker playing by reducing susceptibility to distraction (e.g., maintain focus on the game rather than slipping off into a spell of daydreaming).

The final individual characteristic of interest in the current study was susceptibility to problem gambling behaviours. Susceptibility to problematic gambling behaviour did increase significantly in association with higher skill. Specifically, higher skilled players reported a greater tendency to spend more time and money on gambling than planned, as well as problems with family or spouse because of the time spent gambling. These findings suggest that better players tend towards over-involvement with the game of poker. It may well be the case that the time spent playing poker, however, at least in part, is a facilitator of poker skill attainment. This possibility is supported by the significant univariate correlation between years of playing poker and poker skill.

A final observation concerns the fact that the four most skilled players had similar profiles, with above average (but not exceptionally high) levels of virtually all of the above statistically important variables. This, combined with the observation that the magnitude of all of the statistically significant variables was low, suggests that the profile of a successful poker player is someone who has the requisite levels of all of these attributes, rather than exceptional strength in just one or two of these areas.

Implications

The current study findings lead to two important practical implications. First, these findings contribute to the ongoing legal skill versus chance debate. Herein it was found that individual characteristics are significantly associated with, or aid in, poker playing skill. Success in poker, therefore, rather than being solely reliant on chance,

is influenced by individual characteristics (e.g., social information processing) that contribute to a player's ability to influence game outcomes.

No specific individual difference was found to be sufficient for greater poker skill level, as having a profile of statistically important individual differences (i.e., greater financial risk tolerance, greater social information processing skills, etc.) appears to provide the foundation on which poker players can build skill. To an extent, individual differences that were found to relate to skill level were differences that could be developed or learned (e.g., increasing calculated risk taking, possibly through statistical education). This result supports previous research by DeDonno and Detterman (2008) and Dixon and Jackson (2008), who found that poker training increased poker performance. Thus, the second implication of the current study pertains both to players who desire to improve their poker playing ability or skill level and to businesses and individuals seeking to aid players in game improvement. Given the appropriate training, skill increases are likely attainable. The extent to which poker skill can be increased in general is, however, a topic for future investigations.

Future Directions

An examination of gender differences associated with poker ability should be undertaken. Nearly half of the current study sample was female and the PSM scores of females ranged from 9 to 22 (of 35), indicating that the higher PSM scores were not solely attained by males. Yet skill level did differ between males and females. Given the sample composition, however, it was beyond the capabilities of the current study to evaluate the individual differences of male and female players matched by skill level. Gender differences and similarities in player attributes, therefore, remain unknown.

Some of the individual differences found to be associated with good poker players could feasibly be enhanced by learning or training and as such, the second research direction pertains to the investigation of the impact of learning via both training and experience. Poker-specific statistical understanding, for example, may be developed by immersion (i.e., experience) or by focused training (i.e., commercially available training programs). Greater statistical understanding may in turn lead to changes in risk-taking behaviours during poker playing (e.g., increases in calculated risk taking, the reduction of reckless risk taking). In the current study, however, no data were collected regarding whether or not participants had previously engaged in focused training. Playing experience was significantly related to poker skill, but only in the univariate analysis. Evaluating experience in terms of years may have attenuated the relationship, or the relationship may be spurious. Thus, the magnitude of skill increase due to experience and focused training requires further investigation. It would also be of interest to assess the similarities and differences between experience and focused training.

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For Amusement Only: The Availability and Distribution of Simulated Slot Machines in an Urban Center

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Abstract

The first casino with slot machines in Baltimore City opened in August of 2014. Slot machines have been available in Baltimore City for years, however, under the euphemism “For Amusement Only.” Since 2011, Baltimore City has granted licenses for “simulated slot machines” under the condition that the machines not pay out winnings to the players. In this report, we investigate the number and geospatial patterns of these licensed simulated slot machines. The number of machines began decreasing prior to the opening of the new casino, dropping by as much as 50% over 7 years. These machines tend to be in low-income White neighborhoods and are positively correlated with property crime rates. Understanding the historical context of slot machine play in Baltimore City is important for investigating the impact of the introduction of state-sanctioned slot play in an urban environment.

Keywords: Slot machines, geospatial modeling, cultural differences, state sanctioning

Résumé

Le premier casino avec machines à sous de Baltimore a ouvert ses portes en août 2014. Il y a des machines à sous à Baltimore depuis des années, mais dans leur version euphémique « à des fins récréatives seulement » (« For Amusement Only »). Depuis 2011, la Ville de Baltimore accorde des permis d'exploitation de « simulateurs de machine à sous » sous la condition que les machines ne permettent pas aux joueurs de gagner de l'argent. Dans le présent rapport, nous examinons le nombre des simulateurs de machine à sous pour lesquels des permis d'exploitation ont été octroyés et leur répartition géographique. Ce nombre a commencé à décroître avant l'ouverture du nouveau casino, chutant même de 50 % en 7 ans. Ces simulateurs ont tendance à se

trouver dans des quartiers économiquement moins favorisés et dont la population est principalement blanche, et présentent une corrélation positive avec le taux d'infractions contre les biens. Il est important de bien comprendre le contexte historique de l'utilisation des machines à sous à des fins récréatives seulement à Baltimore afin de pouvoir étudier l'impact de l'apparition dans un milieu urbain de machines à sous pour le jeu autorisées par l'État.

Introduction

Electronic gaming machines (EGMs) include games such as modern-day slot machines and video poker terminals. The commonality across various types of EGMs is the ability of the player to gamble on the results of a random number generator, the result being displayed in various ways, depending on the machine. EGMs are believed to be associated with high rates of gambling-related problems and addictions (Dowling, Smith, & Thomas, 2005). Gambling-related problems have been shown to be associated with accessibility to these gambling platforms (Raylu & Oei, 2002), though the exact nature of the relationship is not certain. Recent evidence suggests that the prevalence of gambling problems tends to spike with the introduction of new EGMs in a jurisdiction and then to plateau (Storer, Abbott, & Stubbs, 2009).

In Baltimore City, EGMs have been available for some time, well before the State of Maryland licensed casinos to offer video lottery terminals (slot machines) in November of 2008. These machines are often available “For Amusement Only” in bars, restaurants, liquor stores, and other retail outlets across the city and are not supposed to reward players with winnings. They are therefore not technically gambling machines, but players and owners widely acknowledge that most “amusement only” EGMs provide players with winning compensation, that is, they pay out, acting as de facto slot machines.

Baltimore City licenses these machines and requires operators to pay an annual registration fee. Prior to January 1, 2011, these machines were licensed simply as amusement devices, making it very difficult to identify EGMs from other amusement devices such as pool tables and jukeboxes. A report published in 2006 by The Abell Foundation (Jacobson, 2006) found that Baltimore City licensed 3,650 amusement devices, an estimated 2,106 of which were EGMs. The report found that Baltimore City had more such gambling machines operating within its boundaries than did the next closest legal gambling venue, Delaware’s Dover Downs Hotel and Casino. The underreporting of income from these quasi-legal machines, and the consequent loss of tax revenue for the state, was one justification for bringing legalized slot play to Maryland. Baltimore City, possibly in recognition of an untapped revenue stream, instituted a registration tax on these machines as of January 1, 2011, which are now

licensed explicitly as “simulated slot machines” (Baltimore City Code, 2010). The terminology change (abbreviated as SSMs in this report) is at least symbolically relevant, indicating an acknowledgement that these machines do more than provide amusement and require some level of special oversight and treatment.

According to a report published in May 2011, over one fifth (21.3%) of the population of Maryland reported gambling on slot machines outside of casinos, with 1% of them doing so weekly (Shinogle et al., 2011). Among those who reported gambling on machines outside of casinos, the prevalence of problem or pathological gambling was estimated at 8.3%, nearly two and a half times the rate in the general population.

The impact of gambling on people and places has long been recognized (Gerstein et al., 1999). The recognition that gambling opportunities are correlated with socioeconomic factors, in particular crime (Seay, 1998), is equally germane. The purpose of this report is to estimate the number of these SSMs in Baltimore City after legalized casino gambling became a reality in the State of Maryland and to describe the socioeconomic predictors of machine density. Machine density is plotted against community characteristics to describe the locales most likely to host these types of machines and the individuals who therefore may be at higher risk of problem or disordered gambling. This information could be used to help focus targeted outreach campaigns for electronic machine gamblers.

Materials and Method

Data on registered SSMs were derived from the Baltimore City Department of Finance via a Maryland Public Information Act request. Data for 2013 licenses included the location of the licensed machine(s), the licensing fee, and the license holder. In 2013, 398 locations were licensed to offer SSMs. The number of machines at each location was recorded for only 103 (26%) of the 398 establishments, though information about fees paid was available for 366 (92%) locations. Therefore, we estimated the number of machines at each location by dividing the total fees paid in 2013 by the fee per device. If the fees paid were missing, the number of machines at the location was imputed to be the modal number of machines across the city.

Data on community level factors were obtained from the Baltimore Neighborhood Indicators Alliance (Baltimore Neighborhood Indicators Alliance–The Jacob France Institute, 2013). Data were available on community statistical areas (CSAs). CSAs are clusters of neighborhoods organized around 2010 Census tract boundaries. There are 55 defined CSAs in Baltimore City (Figure 1).

We derived SSM density by geocoding all licensed machines and cross-referencing them with CSA boundaries. The number of machines registered in the community was then divided by the total population of the community as estimated from the 2010 U.S. Census data. Baltimore City is largely a biracial population: 63.7% Black/African American and 29.6% White. Machine density was plotted against the

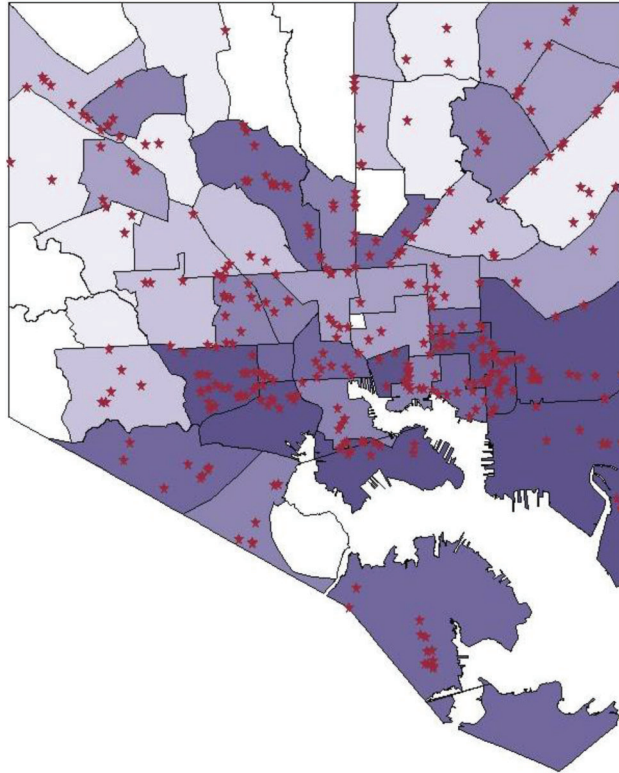


Figure 1. Location and machine density of registered simulated slot machines in Baltimore City, 2013. Areas are community statistical areas. Shading corresponds to the density of simulated slot machines in the community (darker: high density; white: no licensed location in community).

proportions of race and ethnicity in city communities, though the data were likely to be spatially auto-correlated (Gruenewald, Freisthler, Remer, Lascala, & Treno, 2006).

Part 1 crime is defined by the Federal Bureau of Investigation in *Uniform Crime Reports* as homicide, rape, aggravated assault, robbery, burglary, larceny, and auto theft reports to the police department. We defined the Part 1 crime rate as the number of Part 1 crimes divided by the resident population for each community. Part 1 crimes were subdivided into violent crimes—homicide, rape, and aggravated assault and robbery—and property crimes—larceny, burglary, and auto theft. We estimated domestic violence rates from calls to the emergency 911 system. Calls to 911 were used because domestic violence incidents can frequently be subsequently classified as several different criminal offenses in police reports. All crime rates were normalized per 1,000 residents to allow for comparison across areas in the city.

Median household income was obtained from the American Community Survey performed by the U.S. Census Bureau, with analysis provided by the Baltimore Neighborhood Indicators Alliance. Liquor outlet density was estimated from the number of Class A offsite or BD7 tavern liquor licenses granted by the Baltimore City Liquor Board.

Correlations between community-level EGM density and social factors were estimated by Pearson correlations. Linear regression models were used to account for colinearity of the predictors. All statistical analyses were performed with SAS v9.3 (SAS Institute, Cary, NC).

Results

Accessibility to SSMs

In 2013, 398 locations were licensed to carry SSMs in Baltimore City. The imputed number of machines at each location ranged from one machine to 20. The median number of machines was two and only 13 locations had more than four. We estimated that 868 machines were licensed in Baltimore City in 2013.

Geographic Distribution of SSMs

Registered machines were geographically distributed across the city (Figure 1). We calculated machine density as the number of machines divided by the total population in each community. Machine density varied widely in the city. Some communities had no registered machines, whereas other communities had over four dozen machines. Two communities of east Baltimore, Highlandtown and Orangeville/East Highlandtown, had over six machines for every 1,000 residents. For comparison, the casino plans to install 2,500 video lottery terminals (Haber, 2013) in a city of 620,961 residents (U.S. Census, 2010), a machine density of only four machines per 1,000 residents.

Social and Economic Correlates of EGM Density

Figure 2 shows the proportion of Black, White, Asian, and Hispanic residents by community. There is a strong correlation between the racial and ethnic composition of communities and the density of SSMs (Table 1). SSM density is negatively correlated with non-Hispanic Black/African American composition and positively correlated with White and Hispanic community composition. Among the predominantly White communities (defined as communities with > 50% White residents) there was a negative correlation with household income, although this did not reach significance (Pearson correlation = $-.41$, $p = .16$). The density of SSMs was also strongly positively correlated with the density of liquor outlets (Pearson correlation = $.58$, $p < .0001$).

The areas that housed SSMs in Baltimore City were also correlated with a number of indices of crime and safety. Part 1 crime rates were positively correlated with machine density (Pearson correlation = $.27$, $p = .05$), with the correlation being driven primarily by the property crime rate (Pearson correlation = $.29$, $p = .03$).

Because many socioeconomic factors are distributed in Baltimore City colinearly with race and ethnicity, we ran multivariate models. After controlling for race and

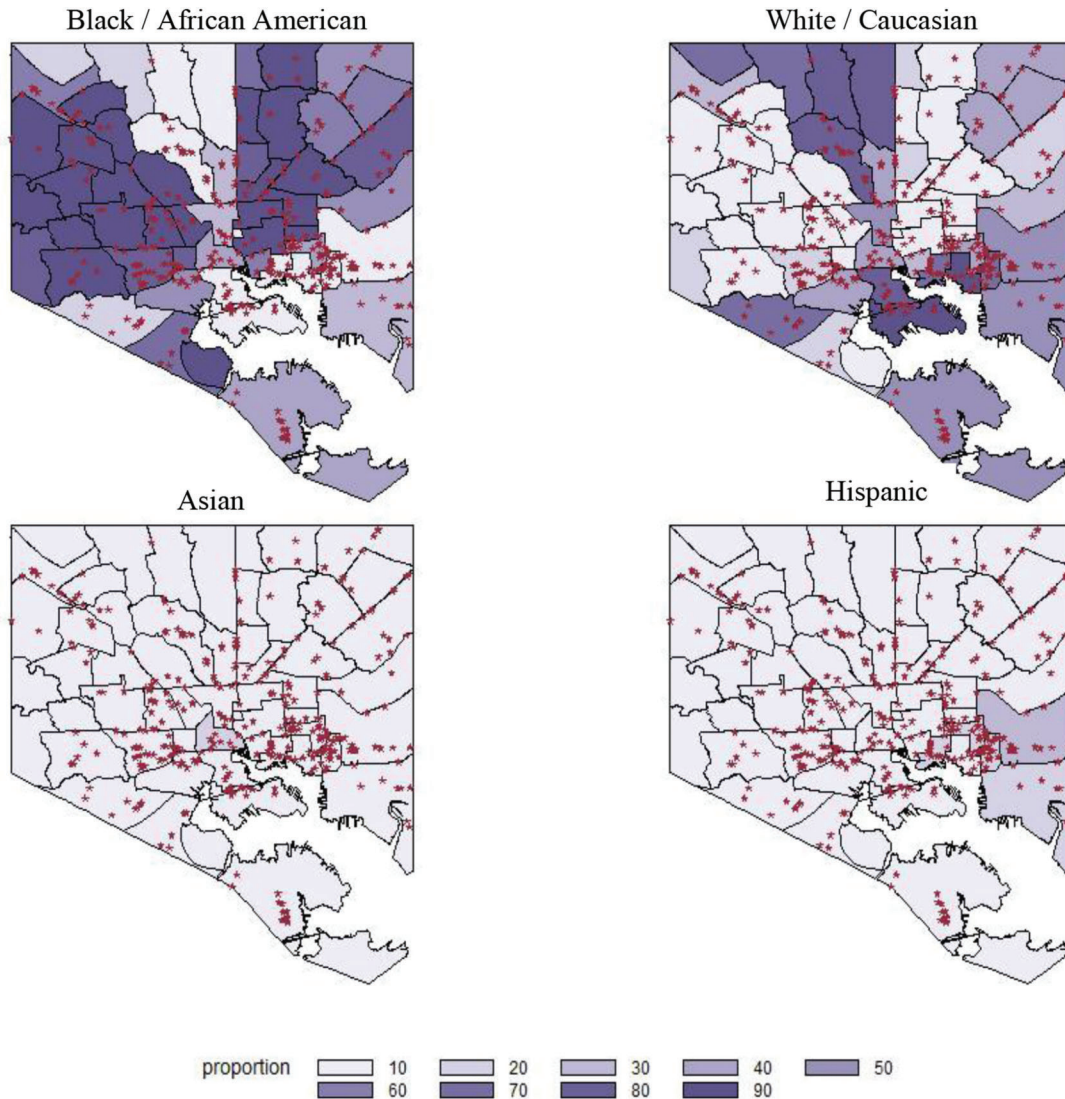


Figure 2. Location of registered simulated slot machines in Baltimore City in 2013 plotted against the proportion of race/ethnicity of community residents.

ethnicity, we found that the density of SSMs was significantly correlated with calls for domestic violence ($\beta = 0.02$ per 1,000 residents $p = .02$) and with the unemployment rate ($\beta = 0.08$ per 1,000 residents, $p = .03$).

Discussion

A nontrivial level of accessibility to EGMs was available within Baltimore City in 2013, the year prior to the opening of a casino in the city. There were an estimated 868 registered SSMs in city bars, restaurants, liquor stores, and other meeting places. A fair amount of uncertainty is involved in this estimate, because a minority of licensees reported the number of machines at the location. Therefore, we used the amount of fees paid to the city as a proxy for the number of machines available at

Table 1

Univariate Correlation of Simulated Slot Machine (SSM) Density and Percentage of Community Residents by Race/Ethnicity and Crime Rates in Baltimore City, as Estimated by Pearson Correlation Coefficients

Community Characteristic	Correlation with SSM Density	<i>p</i>
Race/Ethnicity		
Black/African American (non-Hispanic)	-0.49	.0001
White/Caucasian (non-Hispanic)	0.40	.002
Asian (non-Hispanic)	0.16	.24
Hispanic	0.70	<.0001
Crime		
Part 1 crime rate	0.27	.05
Violent crime rate	0.19	.16
Property crime rate	0.29	.03
Domestic violence calls	0.18	.20

each location because fees must be paid for each registered machine. However, this number is less than half the total number of SSMs estimated in 2005 (Jacobson, 2006), a time with even lower quality record keeping. The number of registered machines may be an underestimate of the true number of SSMs in the city. Anecdotally, a popular lunch destination of the authors, in proximity to the university's campus, offers a machine and does not appear on the registered list. It is likely not the only one. It would be near impossible to gather an accurate estimate of the total number of SSMs in Baltimore City, as many machine operators do not register the machines with city agencies and simultaneously do not prominently display them. A 2006 report (Jacobson, 2006) encountered the same problem, noting that even among registered operators, the number of machines is often under-reported and in conflict with zoning laws.

Despite the likely underestimation of the total number of machines, it is also likely that the true number of SSMs has decreased with time. One possible reason is the anticipation of competition with the new casino. In the community of South Baltimore alone, three known businesses registered SSMs in January 2013 and are either no longer in business or they removed the machines prior to the new casino opening.

SSMs in Baltimore City are concentrated in predominantly low-income White communities. There are several possible reasons for this. One large influence on the distribution of these machines is the marketing of the machines by the licensing companies. Half of the SSM locations in the city are licensed to only seven vending companies. These companies tend to have long-standing relationships with bar and tavern owners in certain communities and, as a result, machine density is highest in those locations. It is also possible that social and cultural influences contribute to the popularity of certain types of gambling activities. EGMs may be particularly popular forms of gambling within lower income White communities. Other forms of

gambling, such as dice or card games, may be popular elsewhere. Treatment and outreach professionals who are interested in reaching EGM players may need to concentrate on low-income White urban neighborhoods, where individuals may be disproportionately exposed to this type of gambling.

Machine density in Baltimore City is positively correlated with property crime. Because of the quasi-legality of the machines themselves (the machines are licensed but paying out winnings is still illegal), it is possible that this correlation is due to varying levels of familiarity or acceptance of crime by community members. That is, it is possible that residents of high-crime neighborhoods are more likely to accept “victimless” crime such as illegal slot machine payouts. Businesses in more affluent, crime-free areas of the city have little incentive to install SSMs in their respective establishments if players in the area are scared off by the nature of the payout. Thus, the association between machine density and crime rates should not necessarily be interpreted as machine play or players being responsible for an increase in crime rates. It is just as likely that this observed association is because businesses in low-crime affluent areas choose not to install these types of machines.

The recent expansion of legalized slot play in Baltimore City brought an estimated 2,500 new EGMs within the city limits. This study demonstrates that these new machines will be added to an already existing fabric of machines. Although some evidence indicates that the number of SSMs licensed by the city has declined in recent years, a substantial amount of electronic game play still occurs, particularly in lower income White communities. Future prevalence and incidence studies of gambling problems will need to account for the historic ebb and flow of accessibility to electronic games in the city. The new casino has not introduced slot play to Baltimore City, but rather adds to existing play and alters the delivery and location of the play.

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Raisons de jouer, émotions et perceptions relatives au hasard et à l'habileté de joueurs pratiquant le poker Texas Hold'em en ligne

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Résumé

Bien que la pratique du poker en ligne se trouve associée à des taux élevés de problèmes de jeu, on en sait encore peu sur ce qui distingue, dans ce cas particulier, les joueurs présentant des niveaux de problème de jeu différents. Trois groupes de joueurs (à faible risque ($n = 7$), à risque ($n = 7$) et problématiques ($n = 3$)) qui pratiquent le poker Texas Hold'em en ligne ont été comparés sur le plan de leurs raisons de jouer, des émotions vécues au jeu et de leurs perceptions relatives au hasard et à l'habileté. L'analyse thématique des entretiens de groupe réalisés montre que les raisons de jouer et les émotions révélées par les joueurs sont similaires dans les trois groupes. Cependant, la surestimation de l'habileté personnelle distingue les groupes des joueurs à risque et problématiques du groupe des joueurs à faible risque. Les perceptions recueillies grâce à cette étude pourront contribuer à l'élaboration ou à l'adaptation de questionnaires d'évaluation des perceptions erronées destinés aux joueurs de poker.

Mots-clés: jeu en ligne, poker, perceptions, émotions, prévention, traitement.

Abstract

Although the practice of online poker is associated with high rates of gambling problems, little is yet known about what distinguishes online poker players with different levels of gambling problems. Three groups of Texas Hold'em online poker players (low-risk ($n = 7$), at-risk ($n = 7$) and problematic ($n = 3$)), were compared in terms of their motivations to play, their emotions experienced during play and their perceptions about chance and skill. Thematic analysis from focus groups conducted reveals that the motivations to play and emotions reported in the groups are similar. The at-risk and problematic groups distinguish themselves from the low-risk group in their over-estimation of their personal skill. The beliefs gathered through this study will contribute to the development or adaptation of erroneous beliefs' questionnaires used with online poker players.

Introduction

La pratique de jeux de hasard et d'argent (JHA) en ligne se trouve associée à des taux considérablement plus élevés de problèmes de jeu que la pratique de JHA hors ligne (Brosowski, Meyer & Hayer, 2012; Griffiths, Wardle, Orford, Sproston & Erens, 2009; Ladd & Petry, 2002; Wood & Williams, 2007, 2011). L'expression « problèmes de jeu » regroupe différentes catégories de joueurs qui éprouvent des conséquences négatives liées au jeu. Ces catégories varient en fonction de l'instrument de dépistage utilisé. Outre les joueurs pathologiques probables, on y retrouve les joueurs à risque faible ou modéré de développer un problème de jeu pathologique. On désigne parfois ces derniers comme étant des joueurs problématiques. Concernant le poker, Mihaylova, Kairouz et Nadeau (2013) mentionnent que les étudiants universitaires de la région de Montréal jouant au poker en ligne ($n = 73$) ont plus de chances (rapport de cotes = 30,34; IC à 95 % [6,6 à 138,5]) d'éprouver des problèmes de jeu (plus de 7 critères à l'Indice canadien du jeu excessif [ICJE]) que les étudiants universitaires jouant au poker hors ligne ($n = 293$).

Les études de Brosowski et al., (2012) et de Wood et Williams (2009) révèlent que la pratique du poker en ligne prédirait des habitudes de jeu problématiques. Dans la méta-analyse de Binde (2011), 18 études nationales de prévalence ont été analysées et montrent l'association étroite entre le jeu par Internet et la prévalence d'un problème de jeu. Binde cite des études suédoises (SOU, 2008; Tryggvesson, 2007) où les joueurs de poker en ligne présentent une proportion élevée (25 %) de joueurs problématiques (score de 3 et plus au South Oaks Gambling Screen [SOGS]). D'autres taux élevés de prévalence des problèmes de jeu ont été observés auprès de joueurs de poker en ligne, dont un taux de 18 % de joueurs pathologiques (4 critères ou plus du *Manuel diagnostique et statistique des troubles mentaux* [DSM-IV-TR; American Psychiatric Association, 2003]) et un taux de 30 % de joueurs ayant des problèmes (score de 2 ou 3 au DSM-IV) chez des étudiants ($n = 422$) du Royaume-Uni pratiquant cette activité (Wood, Griffiths & Parke, 2007).

Aucune estimation des taux de prévalence des problèmes de jeu se rapportant directement à la population de joueurs de poker en ligne au Québec n'est disponible. Par contre, Mihaylova et al. (2013) mentionnent que 17,6 % d'un échantillon d'étudiants universitaires jouant au poker en ligne ($n = 73$) éprouvent des problèmes de jeu (plus de 7 critères à l'ICJE), comparativement à seulement 1,1 % chez les étudiants universitaires ayant joué au poker hors ligne au moins une fois dans la dernière année ($n = 293$). Il s'agit néanmoins d'étudiants universitaires et non pas d'un échantillon représentatif des joueurs de poker. Par ailleurs, selon le rapport de Kairouz, Nadeau et Robillard (2014), 7,9 % des joueurs de poker (pas nécessairement en ligne) rapportent un score de 3 et plus à l'ICJE et seraient des joueurs à risque modéré ou pathologiques probables, la distinction entre les deux catégories n'étant pas publiée. Houle (2008) rapporte également que près de 6 % des joueurs de poker ($n = 258$, mais pas nécessairement de poker en ligne) éprouvent des problèmes liés au jeu (score de 3 à 7 à l'ICJE = 4,2 % et score de 8 et plus = 2,3 %).

Bref, le poker, particulièrement lorsqu'il est pratiqué en ligne, est lié à des taux inquiétants de problèmes de jeu. Par ailleurs, au Québec, le poker à l'argent constituait le JHA en ligne le plus pratiqué chez les adultes en 2012 (Kairouz et al., 2014). La participation au poker en ligne a également connu une croissance chez les élèves du secondaire de la province de Québec, au Canada, au cours des dernières années (Dubé et al., 2009). Ce fait demeure inquiétant, étant donné que la pratique précoce du jeu s'associe au développement d'un problème de jeu à l'âge adulte (Blaszczynski & Nower, 2002).

Le jeu de poker, qu'il soit pratiqué en ligne ou hors ligne, se distingue de plusieurs autres JHA du fait qu'il comporte une part d'habileté. Les résultats de Dedonno et Detterman (2008) montrent que l'apprentissage de stratégies permet aux joueurs de poker d'obtenir de meilleurs résultats. Ceux de Croson, Fishman et Pope (2008) révèlent qu'il est possible de prédire de façon statistiquement significative le rang dans lequel un joueur de poker terminera un tournoi en se basant sur les rangs obtenus par ce joueur à des tournois antérieurs. Ceux de Turner et Fritz (2001) apportent une nuance concernant l'influence de l'habileté sur les résultats du jeu au poker. Ils suggèrent que plus les adversaires possèdent des niveaux d'habileté équivalents, plus les résultats du jeu relèvent du hasard. Bien entendu, lorsqu'il y a déséquilibre sur le plan de l'habileté des adversaires, les moins habiles deviennent plus susceptibles d'essuyer des pertes (Turner & Fritz, 2001). Les résultats d'autres études montrent que la valeur des cartes détermine la plupart du temps les résultats obtenus au poker, atténuant l'influence de l'habileté des joueurs sur les résultats du jeu (Berthet, 2010; Meyer, von Meduna, Brosowski & Hayer, 2012; Sévigny, Ladouceur, Dufour & Lalande, 2008). L'interprétation de Fiedler et Rock (2009) et de Berthet (2010) résume bien les résultats de l'ensemble de ces études, soit que le poker n'est pas uniquement un jeu de hasard, ni totalement un jeu d'habileté, mais qu'il se déplace sur un continuum entre ces deux extrémités.

Aux JHA dépourvus de la composante habileté, l'illusion de contrôle est l'une des perceptions dites erronées qui détient un appui empirique robuste quant à son influence sur le développement et le maintien des problèmes de jeu (Fortune & Goodie, 2012). Mais aucun outil actuel ne permet d'évaluer correctement les illusions de contrôle des joueurs de poker. L'illusion de contrôle se réfère à des attentes de succès personnel plus élevées que les probabilités envisagées de façon objective (Langer, 1975, traduction libre). Myrseth, Brunborg & Eidem (2010) ont comparé des joueurs pratiquant des JHA sans composante d'habileté (machines à sous, bingo, loteries) à des joueurs qui participent à des JHA perçus par les chercheurs comme impliquant différents niveaux d'habileté (jeux de cartes, paris sur les courses de chevaux, paris sportifs). Ils ont trouvé que ces derniers obtenaient un score plus élevé pour la variable « illusion de contrôle » évaluée avec le Gambler's Beliefs Questionnaire (GBQ; Steenberg, Meyers, May & Whelan, 2002). Dans le même ordre d'idée, Dufour, Brunelle, Richer et Petit (2009) ont observé l'illusion de contrôle auprès de joueurs de poker en utilisant l'Inventaire des croyances liées au jeu (ICROLJ; Ladouceur, Jacques, Giroux & Sévigny, 2006). Le score relatif à

l'illusion de contrôle calculé pour les 87 joueurs de poker en ligne de l'échantillon (23,2) s'est révélé légèrement, mais statistiquement plus élevé ($p < 0,001$) que celui des 113 joueurs de poker en salle (21). Il s'agit pourtant du même jeu de cartes. Il est à noter que les items mesurant l'illusion de contrôle ciblaient les pensées liées aux jeux de hasard en général.

En ce qui a trait au poker, ou à tout autre jeu où l'habileté joue un rôle, l'obtention d'un score élevé aux items qui estiment l'illusion de contrôle paraît logique, dans la mesure où ce jeu implique une certaine part d'habileté. Plusieurs des questions du GBQ et pratiquement toutes les questions de l'ICROLJ concernant l'illusion de contrôle se réfèrent à des éléments jugés illusoire dans le cas des jeux de hasard sans composante d'habileté, mais non illusoire lorsqu'il s'agit du poker. L'énoncé « Le jeu ne relève pas uniquement du hasard » (traduction libre) tiré du GBQ en constitue un bon exemple. Selon Barrault et Varescon (2012) et Bjerg (2010), il est possible que l'utilisation de tels questionnaires ne soit pas adaptée à des jeux comme le poker. En effet, l'obtention d'un score élevé par un joueur de poker à la dimension « illusion de contrôle » produit probablement une surestimation de ses illusions relatives à ce JHA. Un score élevé relève de la logique et montre que le joueur interprète correctement l'implication du hasard au poker. Pour déterminer si des joueurs de poker possèdent des illusions de contrôle, il faudra de nouveaux outils de mesure adaptés aux jeux de hasard et d'habileté.

Par ailleurs, les résultats de Bjerg (2010), basés sur une analyse qualitative d'entrevues individuelles auprès de 29 joueurs de poker hors ligne et en ligne, suggèrent que les perceptions liées au développement de problèmes au poker ne seraient pas associées à la présence d'illusions relatives au hasard ou à la structure du jeu, mais plutôt à des perceptions erronées liées à l'autoévaluation des joueurs de leur niveau d'habileté par rapport à celui de leurs adversaires. Langer (1975) va dans le même sens lorsqu'elle suggère que les personnes participant à des JHA impliquant une part d'habileté peuvent être amenées à surestimer le contrôle qu'elles exercent sur les résultats du jeu en raison du rôle actif que ces jeux confèrent aux joueurs.

Wood et al. (2007) ont étudié 422 étudiants pratiquant le poker par Internet. Les résultats, obtenus au moyen d'un questionnaire en ligne, ont montré que 38 % des joueurs perçoivent le poker comme un jeu où l'habileté prévaut, tandis que 32 % le perçoivent davantage comme un jeu de hasard et que 30 % le voient comme un jeu mélangeant hasard et habileté à parts égales. Ces auteurs soutiennent que la perception du poker comme un jeu dans lequel le hasard et l'habileté s'équivalent prédit de façon significative la présence d'un problème de jeu. Alors que les joueurs subissant peu de conséquences du jeu (dans leur étude, scores de 2 et 3 sur 10 au DSM-IV) sont les plus susceptibles de croire que le poker est surtout un jeu d'habileté, les joueurs qui subissent des conséquences plus nombreuses (dans leur étude, scores de 4 et plus sur 10 au DSM-IV) sont les moins enclins à présenter cette perception. Bouju, Grall-Bronnec, Quistrebert-Davanne, Hardouin et Vénisse (2013) rapportent également que les joueurs éprouvant le plus de problèmes s'en remettent au hasard, et non à l'habileté, pour expliquer leurs pertes. À l'encontre de certains

résultats de Bjerg (2010), ceux de Wood et al. (2007) montrent par ailleurs que les joueurs pathologiques sont les moins enclins à se considérer d'un niveau d'habileté supérieur à la moyenne. Wood et al. (2007) expliquent leurs résultats par le fait que les joueurs pathologiques, ayant connu davantage de pertes avec l'expérience, en arrivent à une vision plus nuancée de la part d'habileté impliquée dans le jeu, de même que de leur propre niveau d'habileté.

Bref, les travaux cités suggèrent que les joueurs de poker peuvent présenter des perceptions biaisées de certains aspects du jeu relatifs au hasard et à l'habileté, quoique la nature et le rôle de ces perceptions demeurent mal définis. Les joueurs qui pratiquent le poker par Internet pourraient entretenir davantage ces perceptions. Ces dernières pourraient avoir une influence sur le développement et le maintien de problèmes de jeu, comme c'est le cas pour les JHA sans composante d'habileté (Barraut & Varescon, 2012).

En revanche, Mitrovic et Brown (2009) estiment que les perceptions erronées telles les illusions de contrôle n'occupent pas une place majeure dans le développement de problèmes de jeu chez les joueurs de poker. D'autres facteurs, dont une motivation non autodéterminée, c'est-à-dire guidée par l'atteinte d'un résultat (l'argent, par exemple), constitueraient de meilleurs prédicteurs des problèmes liés à ce jeu. Plusieurs recherches ont investigué les motifs qui poussent les gens à jouer au poker en ligne. Parmi les raisons recensées, on retrouve l'aspect stratégique et le désir de développer ses habiletés (Bradley & Schroeder, 2009; Bonneau & Turgeon, 2010), l'espoir de faire de l'argent (Martin, 2008; Pastinelli, 2008; Responsible Gambling Council, 2006; White, Mun, Kauffman, Whelan & Regan, 2007), le divertissement (Bonneau & Turgeon, 2010), le travail (McCormack & Griffiths, 2012; Radburn & Horsley, 2011) et la fuite de problèmes ou d'émotions désagréables (Wood et al., 2007). Les travaux de Wood et al. (2007) ont montré que tous les types de joueurs de poker en ligne sont motivés par l'argent et l'excitation, mais que comparativement aux autres joueurs, les joueurs pathologiques sont plus enclins à pratiquer le poker en ligne pour fuir leurs problèmes personnels ou parce qu'ils se sentent chanceux. Bouju et al. (2013) rapportent que l'argent demeure la principale motivation pour jouer, car il porte les joueurs à croire que le poker peut, de manière quasi magique, changer radicalement leur vie et résoudre leurs problèmes. Néanmoins, les raisons de jouer au poker en ligne qui distinguent les joueurs ayant un problème de jeu et les autres joueurs demeurent peu étudiées.

Outre les perceptions erronées et les raisons de jouer, la stimulation émotionnelle associée à la pratique du poker pourrait avoir un impact sur le développement d'un problème de jeu (Browne, 1989). En effet, les séquences de jeu gagnantes et perdantes entraînent des émotions intenses qui ont été peu considérées jusqu'à présent dans les recherches portant sur le poker. Par exemple, ce que les joueurs appellent le *tilt* constitue un phénomène émotionnel lié à la pratique du poker et connu depuis longtemps. Le *tilt* peut se produire dans différents contextes, mais il s'agit souvent d'un état de frustration associé à des pertes d'argent résultant de plusieurs « défaites » ou à l'impression d'avoir vécu une ou plusieurs injustices attribuables au hasard

(Browne, 1989). Le *tilt* peut amener les joueurs qui ne le gèrent pas correctement à prendre de mauvaises décisions et à perdre davantage. Par exemple, certains joueurs s'entêteront à jouer davantage malgré les défaites, dans le but de couvrir rapidement leurs pertes. L'état de *tilt* serait lié à la perte d'argent au poker (Griffiths et al., 2010). Browne (1989) définit le *tilt* comme une perte de contrôle pendant une situation de jeu. Il a observé le *tilt* auprès de joueurs réguliers de poker en salle, qu'ils soient récréatifs, problématiques ou professionnels. Il constate que la fréquence et la durée du *tilt* distinguent des autres les joueurs qui éprouvent des problèmes de jeu.

Ainsi, contrairement aux joueurs récréatifs ou professionnels, les joueurs problématiques éprouveraient de la difficulté à reprendre le contrôle de leurs émotions. Existe-t-il d'autres différences dans l'expérience émotionnelle vécue par les joueurs de poker en ligne qui ont un problème de jeu et par ceux qui n'en ont pas? Il s'agit d'un aspect particulièrement important à explorer, puisque les joueurs de poker perçoivent la gestion des émotions comme une habileté à développer pour devenir un joueur gagnant (McCormack & Griffiths, 2012). De plus, il semble que l'état émotionnel des joueurs aux JHA en général peut interagir avec les perceptions entretenues à l'égard du jeu (Barrault & Varescon, 2012).

La plupart des études portant sur le poker visent les joueurs de poker dans leur ensemble (Bonneau & Turgeon, 2010), ou comparent les joueurs de poker en ligne ou en salle (Dufour et al., 2009), récréatifs ou professionnels (Radburn & Horsley, 2011; McCormack & Griffiths, 2012), expérimentés ou inexpérimentés (Linnet, Gebauer, Shaffer, Mouridsen & Møller, 2010; Palomäki, Laakasuo & Salmela, 2012), et gagnants ou pas sur le plan financier (Griffiths, Parke, Wood & Rigbye, 2010). De rares études ont abordé la comparaison des perceptions de joueurs pratiquant le poker en ligne et qui présentent des niveaux de problème de jeu différents.

L'objectif principal de l'étude consiste à explorer les perceptions du hasard et de l'habileté, incluant les perceptions erronées telles l'illusion de contrôle, les raisons de jouer et les émotions liées au jeu des joueurs qui pratiquent le poker Texas Hold'em en ligne. Cette étude permettra d'examiner les propos des joueurs et possiblement d'y déceler des différences en fonction du niveau de problème de jeu présenté. Trois groupes ont pu être formés : un groupe de joueurs à faible risque de développer un trouble du jeu, un groupe de joueurs à risque et un groupe de joueurs problématiques.

Cette étude qualitative se veut à la fois descriptive et exploratoire – descriptive parce qu'elle expose les résultats obtenus pour les différents groupes de joueurs étudiés, exploratoire puisqu'elle sert à fournir des pistes de recherches futures qui découlent de ces observations (Trudel, Simard & Vonarx, 2007). Ces pistes sont présentées plus loin, dans la section portant sur la discussion des résultats.

Les questions de recherche investiguées dans cette étude sont les suivantes : 1a) Les perceptions relatives au hasard et à l'habileté révélées par des joueurs qui pratiquent le poker Texas Hold'em en ligne varient-elles en fonction du niveau de problème de jeu? 1b) L'exploration des perceptions des joueurs permet-elle de déceler des

perceptions erronées? Si oui, ces perceptions varient-elles en fonction du niveau de problème de jeu? 2) Les raisons de jouer rapportées par les joueurs varient-elles en fonction du niveau de problème de jeu? 3) Les émotions vécues au jeu rapportées par les joueurs varient-elles en fonction du niveau de problème de jeu?

Méthode

Protocole de recherche

Cette étude utilise un protocole de recherche qualitatif par entretiens de groupe. Le recours à une méthode qualitative est pertinent pour l'exploration de phénomènes peu étudiés (Touré, 2010), ce qui est le cas de la comparaison de joueurs de poker présentant des niveaux de problème de jeu différents. Ce type de méthode peut faire ressortir des aspects que la recherche quantitative n'aurait pas permis de répertorier (Bouju et al., 2013) et générer des hypothèses à tester ultérieurement (Touré, 2010). Les méthodes qualitatives offrent de plus la possibilité de sous-questionner les joueurs afin d'obtenir des données plus riches que celles que l'on recueille de façon quantitative (Baribeau, 2010). Une limite des méthodes qualitatives demeure la généralisation des résultats, en raison du petit nombre de sujets étudiés (Patton, 2002).

Parmi les méthodes qualitatives, l'entretien de groupe a été choisi parce que son utilisation favorise l'échange de points de vue similaires et différents entre les participants, et la mise en relief des nuances entre ceux-ci (Baribeau, 2010). Il s'agit d'une façon peu coûteuse d'obtenir cette variété de points de vue (Demers, 2010). Par ailleurs, les entretiens de groupe se produisent dans un contexte d'échanges joueur-joueurs-chercheur plutôt que simplement joueur-chercheur (Barbour & Kitzinger, 1999). Ils permettent donc de décrire les phénomènes étudiés « tels qu'ils sont vécus et partagés » par les sujets à l'étude (Touré, 2010). Dans le cas présent, ils donnent accès au vocabulaire et aux termes propres aux participants (Baribeau, 2010), ce qui sera éventuellement utile – avec la combinaison des résultats d'autres études – à l'adaptation des items des questionnaires d'évaluation des perceptions destinés aux joueurs de poker. L'utilisation d'entretiens de groupe permet finalement de laisser les participants exprimer leur point de vue librement, mais sur des questions orientées (Davila & Domínguez, 2010), qui visent à faire ressortir leurs perceptions concernant des variables ciblées et reconnues dans la littérature comme ayant un lien avec le jeu problématique (perceptions relatives au hasard et à l'habileté, raisons de jouer et émotions liées au jeu) ou pouvant faire émerger des perceptions erronées.

Participants

La méthode d'échantillonnage par contraste (LeCompte & Preissle, 1993) a été principalement utilisée, le critère de diversification intergroupe étant le niveau, chez les joueurs, de problèmes de jeu au poker Texas Hold'em en ligne. Les participants ciblés ont été recrutés par différentes modalités : une liste de volontaires du centre de recherche, la publication d'annonces dans les journaux locaux, l'envoi de messages dans les boîtes courriel des étudiants et employés de l'Université Laval et sur un forum

de poker. Les participants étaient invités à parler de l'étude à leurs amis, ce qui a permis de recruter des participants supplémentaires (méthode d'échantillonnage supplémentaire en chaîne). Le recrutement s'est déroulé entre le 15 février et le 30 avril 2010. Les participants devaient 1) être âgés de 18 ans ou plus; 2) être de genre masculin (les joueurs de poker étant majoritairement des hommes; International Gaming Research Unit, 2007); 3) avoir joué au poker via Internet pour de l'argent au moins une fois par mois, au cours des six derniers mois, et 4) ne jamais avoir suivi de thérapie cognitive-comportementale pour un problème de jeu (puisque ce type de thérapie vise la restructuration cognitive des perceptions erronées relatives au hasard).

Au total, 148 personnes ont été approchées afin qu'elles participent à l'étude. Parmi elles, 88 n'étaient pas admissibles, étaient injoignables ou ont refusé de participer. Des 60 personnes admissibles, 9 ont été sélectionnées de façon aléatoire pour participer à un groupe de discussion pilote devant permettre de vérifier l'adéquation des questions administrées. Des 51 personnes restantes, 29 ont été sélectionnées sur la base de leur score au National Opinion Research Center DSM Screen (NODS; Gerstein et al., 1999) et de leur disponibilité, afin de former trois groupes de joueurs présentant des niveaux de problème de jeu différents au poker en ligne : à faible risque (score de 0 au NODS), à risque de développer le jeu pathologique (score de 1 ou 2 au NODS) et problématiques (score de 3 ou 4 au NODS). Malgré les différentes techniques de recrutement utilisées, aucun participant ne répondait aux critères du jeu pathologique selon le NODS (un score de 5 ou plus), donc aucun groupe de joueurs pathologiques n'a été formé. Des groupes d'un minimum de 3 joueurs étaient souhaités pour permettre des échanges suffisamment riches entre les participants, concernant leur expérience au poker en ligne (Krueger, 1994). Toutefois, 5 personnes invitées à participer à un groupe n'étaient finalement plus disponibles et 7 personnes n'ont pas pu se présenter aux entretiens en raison d'imprévus. Au final, 17 hommes ont pris part à l'étude. Les groupes de joueurs à faible risque et à risque comptent chacun 7 participants, et le groupe de joueurs problématiques, 3 participants.

L'ensemble des participants provient de la province de Québec. La plupart d'entre eux jouent des tournois et des *cash games* en ligne, principalement du Texas Hold'em sans limite de mise. Leurs sites de jeu en ligne privilégiés sont Poker Stars et Full Tilt. Les trois quarts des participants ont également misé à d'autres JHA au cours de la dernière année, les jeux les plus populaires étant la loterie (13 participants) et les jeux de casino (9 participants) tels le black jack, les machines à sous, le poker et la roulette. Les caractéristiques sociodémographiques des participants de chacun des groupes sont présentées au Tableau 1 et leurs habitudes de jeu au poker en ligne, au Tableau 2. Étant donné la nature qualitative de cette étude, ces données ne sont présentées qu'à des fins descriptives.

Instruments et matériel

Entrevue téléphonique. Une entrevue téléphonique d'une durée approximative de 40 minutes visait à obtenir le consentement verbal des participants, à vérifier les

Tableau 1

Caractéristiques des participants par groupe, par fréquence

Caractéristique	Sans problème (n = 7)	À risque (n = 7)	Problématiques (n = 3)
Âge			
20 – 29	6	3	2
30 et +	1	4	1
Langue maternelle			
Français	7	7	3
État civil			
Célibataire	7	3	2
Conjoint de fait	0	3	0
Marié	0	1	1
Scolarité			
Secondaire	2	2	1
Collégial	5	3	1
Universitaire	0	2	1
Occupation			
Emploi – temps plein	4	4	0
Emploi – temps partiel	0	2	1
Études	2	1	1
Autre	1	0	1
Revenu			
20 000 \$ et -	3	2	2
20 001 – 40 000 \$	3	1	0
40 001 – 60 000 \$	0	1	0
60 001 \$ et +	1	3	1

critères d'admissibilité et à répartir les joueurs entre les différents groupes. Elle comprenait quatre mesures : les habitudes de jeu au poker et aux autres JHA, le niveau de problèmes de jeu liés au poker en ligne et les caractéristiques sociodémographiques.

Habitudes de jeu au poker. Un questionnaire maison composé de 19 questions a permis d'obtenir des informations telles que les sites Internet et les lieux de poker en salle fréquentés, les types de poker et les variantes pratiqués, les montants d'argent misés, le temps passé à y jouer et le nombre d'années d'expérience à ce jeu en ligne.

Habitudes de jeu à d'autres JHA que le poker. Les personnes interviewées ont répondu à un questionnaire de 41 questions permettant de dresser le portrait de leurs habitudes de jeu, en particulier la fréquence et les montants d'argent misés à 10 autres JHA (p. ex., loterie, jeux de casino, appareils de loterie vidéo, paris sportifs). Le questionnaire s'inspire de celui de Ladouceur, Jacques, Chevalier, Sévigny, et Hamel (2005).

Niveau de problèmes de jeu. La traduction française (Jacques, 2000) du National Opinion Research Centre DSM-IV Screen for Gambling Problems (NODS; Gerstein et al. 1999) a servi au dépistage des problèmes de jeu liés au poker en ligne, au cours de la

Tableau 2

Fréquences liées aux habitudes de jeu au poker des participants, par groupe

Habitude	Sans problème (n = 7)	À risque (n = 7)	Problématiques (n = 3)
Séance(s) de jeu / sem.			
Moins d'une	1	0	0
1 – 2	3	4	1
3 – 4	2	1	1
5 et plus	1	2	1
Temps passé à jouer (h) / mois			
- de 10	1	1	0
10 à 19	2	0	1
20 à 29	1	1	0
30 à 39	0	2	0
40 et +	3	2	2
Donnée manquante	0	1	0
Argent dépensé (\$) / mois			
- de 50	2	2	2
50 – 99	1	1	0
100 – 199	0	2	0
200 et +	3	1	0
Donnée manquante	1	1	1

Note: La fréquence de jeu au poker par semaine rapportée est celle des six derniers mois précédant l'entrevue téléphonique. Le temps passé à jouer et l'argent dépensé au poker rapportés sont ceux du dernier mois. Pour l'argent dépensé au poker, les données manquantes des participants aux groupes à risque et à problème sont liées à l'impossibilité selon les joueurs d'estimer ces valeurs. En effet, ces derniers ont rapporté faire des dépôts sporadiques d'argent dans leur compte, mais jouer principalement à partir de leurs gains de jeu.

dernière année. Elle se compose des 17 questions diagnostiques du NODS, basées sur les 10 critères du jeu pathologique de la quatrième édition du *Manuel diagnostique et statistique des troubles mentaux* [*Diagnostic and Statistical Manual of Mental Disorder*] (DSM-IV-TR; American Psychiatric Association, 2003). Ces questions se répondent de façon dichotomique (oui ou non). Le score total au NODS peut varier entre 0 et 10 : un score de 0 indique un risque faible de présenter le jeu pathologique; un score de 1 ou 2, la présence d'un risque de souffrir de jeu pathologique; un score de 3 ou 4 indique des habitudes de jeu problématiques; et un score de 5 ou plus reflète un jeu pathologique. La version anglaise de l'instrument possède une cohérence interne et une fidélité test-retest à deux semaines d'intervalle élevées ($r = 0,98$ pour la prévalence au cours des douze derniers mois) (Gerstein et al., 1999). La traduction française de l'instrument, testée auprès d'un échantillon de 865 personnes, a montré une cohérence interne de 0,91 (Jacques, 2000).

Caractéristiques sociodémographiques. Les participants ont fourni les informations suivantes : âge, genre, lieu de naissance, langue maternelle, état civil, niveau de scolarité, occupation principale, appartenance religieuse et tranche de revenu personnel brut annuel.

Questionnaire sur l'habileté et le hasard. Les participants ont donné leur degré d'accord par rapport à 18 questions portant sur le hasard et l'habileté au poker en ligne, en utilisant une échelle de type Likert où 1 signifiait « totalement en désaccord » et 10, « totalement en accord ». Ce questionnaire ne visait qu'à aider les participants à entamer leur réflexion sur le thème central de la discussion et à organiser leur pensée (Van der Maren, 2010). Les données issues de ce questionnaire n'ont pas été analysées.

Guide d'animation des entretiens de groupe. Ce guide, qui a servi à standardiser la tenue des entretiens de groupe, comprend des questions ouvertes sur les raisons de jouer au poker en ligne, les émotions vécues en y jouant, les perceptions relatives au hasard et à l'habileté, les aspects financiers associés au poker en ligne et le développement de problèmes de jeu liés à cette activité. Il comporte également une simulation de tournoi de poker *Texas Hold'em* en ligne, sans limite de mise et à cinq joueurs, créée pour les besoins de l'étude. Dans cette simulation, les petites et grandes mises à l'aveuglette étaient de 5 et 10 jetons, respectivement. Les joueurs de la simulation recevaient 1 500 jetons au départ. Lors de ce tournoi, le joueur surnommé Do4Love perdait la main alors qu'il détenait une paire de rois à l'as, contre un adversaire qui complétait une couleur sur la dernière carte commune (la rivière).

Procédure et déroulement des entretiens de groupe

L'étude a reçu l'aval du Comité d'éthique de la recherche avec des êtres humains de l'Université. Après avoir répondu à l'entrevue téléphonique, les participants sélectionnés ont participé à l'un des trois groupes de discussion correspondant à leur niveau de problème au poker en ligne. Les joueurs n'étaient pas informés du groupe auquel ils avaient été assignés. Ces entretiens de groupe, d'une durée de deux heures trente minutes, ont eu lieu sur le campus de l'Université Laval, à Québec. Avant chaque entretien, les participants remplissaient de façon individuelle le formulaire de consentement et le Questionnaire sur l'habileté et le hasard. À la suite du mot de bienvenue et de l'explication des objectifs de l'étude, la discussion de groupe sur les thèmes à l'étude était entamée. Cette discussion était animée par une étudiante de troisième cycle en psychologie. Cette dernière agissait comme facilitatrice des échanges de points de vue entre les participants, leur donnant le premier rôle (Van der Maren, 2010). Au milieu de l'entretien, durant la pause prévue, du café et des biscuits leur étaient offerts. Par la suite, une simulation d'un tournoi de poker en ligne leur était présentée. Les participants étaient invités à se mettre « dans la peau » du joueur surnommé Do4Love et à commenter ses actions et celles de ses adversaires. Des questions ouvertes telles que « Que pensez-vous de cette action? » et « Quelles sont vos impressions sur les autres joueurs après ce tour de jeu? » leur étaient posées afin de favoriser leurs verbalisations concernant le hasard et l'habileté au poker en ligne.

Les joueurs se sont exprimés librement. La dynamique était similaire d'un groupe à l'autre. Les joueurs participaient avec intérêt, et leur connaissance du poker était évidente. Les joueurs étaient respectueux des consignes et polis. Dans chaque groupe,

certains joueurs étaient plus impliqués que d'autres dans la discussion. Lorsqu'un joueur énonçait une perception, l'expérimentatrice vérifiait si d'autres joueurs étaient en accord ou en désaccord avec l'énoncé et les invitait à expliquer pourquoi. Les discussions ont été enregistrées en audio, en format MP3. Un dédommagement de 40 \$ en chèque-cadeau d'un centre commercial local a été remis aux participants, en plus d'un montant de 10 \$ en argent comptant permettant de couvrir leurs frais de stationnement sur le campus universitaire.

Analyse thématique

L'analyse thématique, en raison de sa flexibilité, se marie bien aux caractères descriptif et exploratoire de certains des objectifs de l'étude (Braun & Clarke, 2006; Trudel et al., 2007). Elle permet d'identifier et d'analyser les thèmes issus des discussions de façon détaillée et représentative du vécu des joueurs (Braun & Clarke, 2006; Trudel et al., 2007). Elle fournit par ailleurs une organisation des thèmes (Trudel et al., 2007) qui facilite la comparaison des groupes de joueurs à l'étude. Il est possible de confronter la description approfondie des perceptions exprimées par les joueurs de poker au cadre théorique cognitif-comportemental des jeux de hasard et d'argent, puis de générer des hypothèses qui feront l'objet d'études futures (Trudel et al., 2007). En fonction des objectifs décrits précédemment, la présence de perceptions erronées fera l'objet d'une attention particulière.

Les verbatim des entretiens de groupe ont été transcrits en format Word (.doc) à partir de l'écoute des enregistrements numériques. Ils ont été soumis à une analyse qualitative thématique inductive, selon la procédure proposée par Braun & Clarke (2006). Un premier évaluateur a effectué une lecture approfondie et répétée de l'ensemble des verbatim, en prenant en note les idées qui s'en dégagent et leur signification. Ensuite, il a procédé à l'analyse d'un premier verbatim. Pour ce faire, des codes (ou des thèmes) ont été assignés à des segments de texte du verbatim, en utilisant le logiciel QDA Miner, version 3.2.9. Les codes réfèrent au « plus petit élément tiré des données brutes qui peut être interprété en lien avec le phénomène à l'étude » (Boyatzis, 1998). Le premier évaluateur a par la suite effectué une description détaillée du contenu correspondant à chacun des codes dans un guide, en y incluant des exemples de citations. Les codes ont été regroupés sous des catégories de thèmes. Afin d'augmenter la validité de l'analyse, une autre étudiante au doctorat en psychologie a procédé au codage du même verbatim, à partir du guide. Le contenu de ce verbatim représentait 35 % du nombre total de pages (soit 210, à interligne double) que comptait l'ensemble des verbatim des entretiens de groupe. Les codes et leur description ont été révisés de façon commune par les deux évaluateurs, jusqu'à l'obtention d'un consensus. Le taux d'accord entre l'assignation des codes des deux évaluateurs a été calculé avec QDA Miner. Pour que les segments de texte sélectionnés par chacun d'eux soient jugés similaires, ils devaient se recouper à au moins 50 %. Un taux d'accord interjuges final de 99,7 % (alpha de Krippendorff = 0,95) a été obtenu pour le premier verbatim, assurant ainsi la validité des thèmes (Neuendorf, 2002). Par la suite, le premier évaluateur a procédé au codage des autres verbatim.

Les codes et les thèmes issus des verbatim ont été comparés entre les trois groupes de joueurs (à faible risque, à risque et problématiques). Cette comparaison a permis de dégager les spécificités et les similitudes quant aux raisons de jouer, aux émotions vécues au jeu et aux perceptions relatives au hasard et à l'habileté.

Résultats

L'analyse comparative entre les groupes de joueurs est présentée selon les variables liées aux questions de recherche : les perceptions relatives au hasard et à l'habileté, les raisons de jouer au poker en ligne et les émotions accompagnant la pratique de ce jeu. Les similarités entre les groupes de joueurs sont d'abord abordées, suivies des différences entre ces groupes. Les perceptions présentées dans cette section ont émergé dans un ou des groupes de discussion, selon le cas. Une réflexion sur le caractère possiblement erroné de certaines d'entre elles est effectuée dans la section Discussion. Seuls les verbatim qui illustrent le mieux le thème des échanges sont transcrits, afin de ne pas alourdir la section. Le Tableau 3 présente les thèmes et sous-thèmes abordés par les participants lors des entretiens de groupe. La Figure 1 présente de façon schématique les similarités et les différences par rapport à ces thèmes entre les groupes.

Tableau 3
Thèmes et sous-thèmes

Thèmes	Sous-thèmes (codes)
Hasard et habileté	Plus d'habileté que de hasard Présence de hasard Faire des gains = habileté Tenir compte de la position Mise/Action Calculer les probabilités Lire adversaires Stratégies d'autocontrôle Long terme Choix surnom Se refaire Devenir professionnel Devoir développer ses connaissances Devoir se pratiquer Apprendre de ses pertes Méfiance
Raison de jouer	Plaisir/Divertissement Faire de l'argent Développer son habileté
Émotions	Émotions positives Émotions négatives

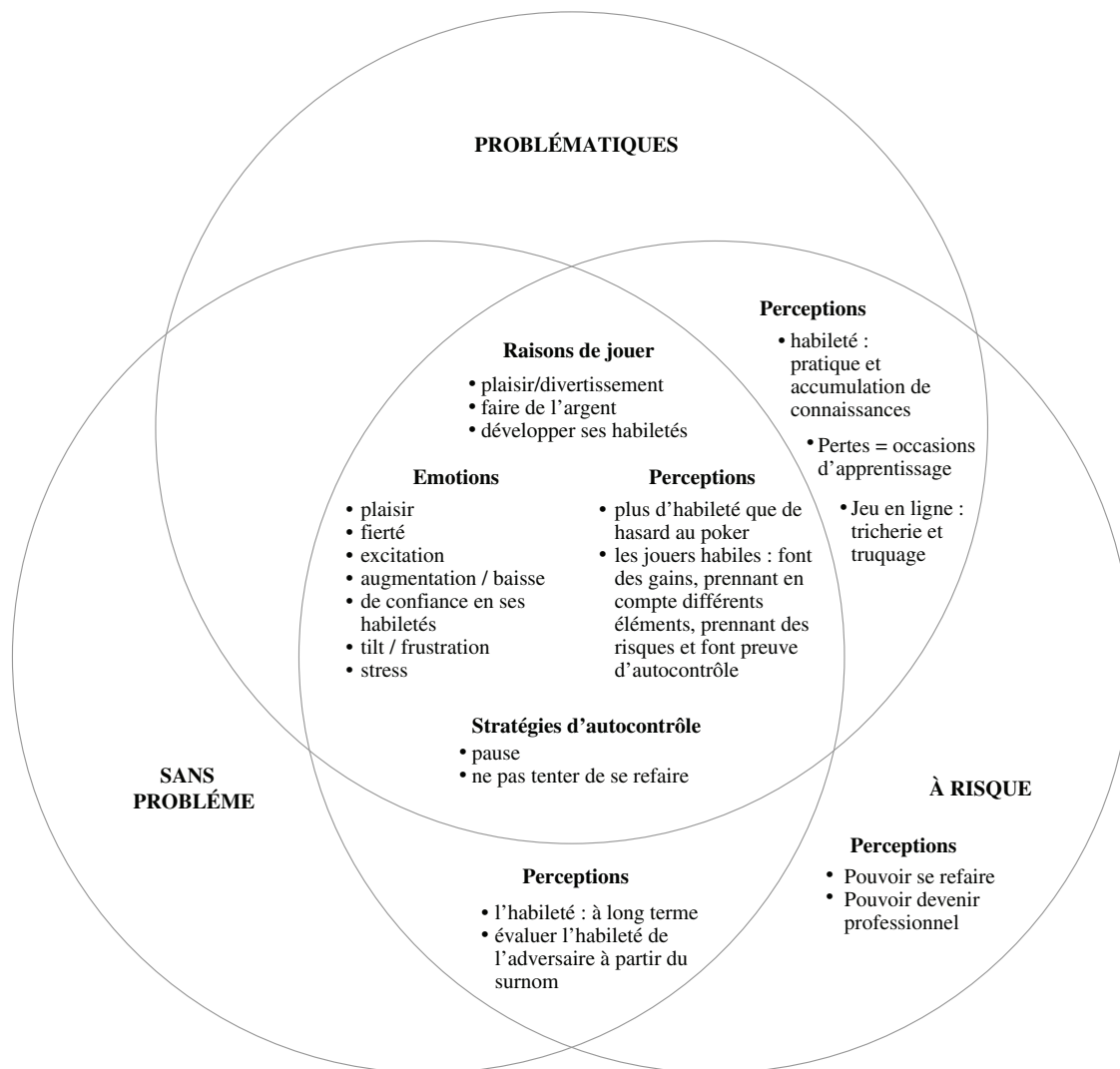


Figure 1. Schémas des thèmes similaires et différents entre les groupes de joueurs.

Le hasard et l'habileté

Thèmes similaires dans les groupes. Dans les trois groupes (à faible risque, à risque et problématiques), des joueurs mentionnent que le poker est un jeu impliquant davantage d'habileté que de hasard.

Pour moi, le poker est beaucoup plus un jeu d'habileté que de hasard. (Joueur à faible risque.)

Parce que moi, c'est niais ce que je vais dire là, mais moi les jeux d'habileté là, le poker selon moi en fait partie comme le curling, le billard, le golf. C'est des habiletés. Tu développes des capacités, puis oui, tu peux monter à un certain niveau, puis tu peux aspirer à un paquet d'affaires... (Joueur à risque.)

Moi je mettrais 75 % habileté, 25 % hasard. Peut-être 80 – 20. (Joueur problématique.)

Bien que percevant davantage d'habileté que de hasard au poker, les joueurs font mention de la présence d'une part de hasard ou de chance sur laquelle ils n'ont aucun contrôle :

Les *bad beat*, [perdre avec une excellente main], c'est un bon exemple de hasard au poker. (Joueur à faible risque.)

Ta deuxième paire d'as que tu pognes dans ta soirée, bien tu es chanceux de l'avoir. (Joueur à risque.)

Il y a de l'habileté, mais il y a de la chance. Si tu n'as pas de jeu pantoute, t'en as pas, t'en as pas là. Tu ne peux pas faire de miracle. (Joueur problématique.)

Dans les trois groupes, est mentionnée l'idée qu'un joueur de poker habile est un joueur qui réalise des gains et qui prend en compte, dans ses décisions, différents éléments liés à la structure du jeu et à ses adversaires. La position à la table, le montant des mises, les probabilités et la lecture des adversaires (hypotheses sur leur état émotionnel ou leur stratégie) constituent des éléments que les joueurs évaluent en pratiquant le poker en ligne.

Quelqu'un qui sait bien jouer va maximiser ses gains, puis va minimiser ses pertes. (Joueur à risque.)

Veut, veut pas, le poker, il y a plein de choses qu'il faut prendre en considération. La position où tu es, les joueurs contre qui tu joues, ce qu'il s'est passé auparavant, etc. (Joueur problématique.)

Bien tu sais, les statistiques sont disponibles sur des sites Web. Donc tu peux voir les statistiques des joueurs, tu peux voir si en ce moment il est *hot* [dans une bonne période], ou s'il est *on tilt* [frustré]. S'il vient de perdre dix parties en ligne, c'est sûr que sa confiance est souvent plus ébranlée. Donc si tu fais un gros *raise* [une grosse relance], il a plus de chances de se coucher qu'un joueur qui est super *hot* puis qui se dit « Ah oui je vais pogner mon affaire! ». (Joueur à faible risque.)

Des stratégies comportementales telles que de prendre une pause, de ne pas jouer sous l'effet de la fatigue, d'émotions négatives ou de substances, ou encore de jouer à des limites de mises plus basses ont été notées dans les trois groupes de joueurs. Celles-ci leur permettraient, à leur avis, de maintenir un bon niveau d'habileté en préservant leur jugement.

Si je *feel* [me sens] moins *dark* [maussade], ou je *feel* moins fatigué ou peu importe, je ne joue pas parce que je sais que ça va affecter ma *game* [façon de jouer]. Si j'ai vraiment le goût de jouer, je vais jouer des micro-limites là, genre des tables à 5 \$, en tout cas, pour moi. Ça ne me dérange pas de perdre 40 \$ dans une soirée là. Ça m'évite de jouer mes limites à 200-400 piasses [dollars], puis en perdre 4 000 là. (Joueur à risque.)

Jouer soûl, ça ne m'arrive jamais aussi. C'est toutes des affaires qui affectent notre jugement puis c'est une *game* [un jeu] de jugement. (Joueur à risque.)

Mais monsieur avait un point tantôt [montre son accord avec un autre joueur sur le même thème], il faut connaître son calibre de joueur parce que moi je joue des *games* à 10, je les gagne, je joue des *games* à 27, je tombe à des *games* à 50, oups, j'en gagne une sur quatre, j'en perds quatre, je ne fais pas d'argent. Là je vais en jouer une à cent, euh, j'en gagne une, j'en perds six. Puis je retourne à des *games* à 40, je retourne à des *games* à 27, je les gagne quasiment toutes. (Joueur à risque.)

Thèmes différents entre les groupes. D'autres thèmes liés au hasard et à l'habileté au poker émergent du discours de certains groupes de joueurs spécifiquement. Le thème voulant qu'au poker l'habileté s'évalue à long terme est mentionné par les joueurs des groupes à faible risque et à risque. Pour ces joueurs, la notion de long terme réfère à l'observation d'un très grand nombre de mains. Le résultat de quelques mains peut être attribuable au hasard, mais leur habileté leur permet d'acquérir un avantage sur le jeu à long terme.

La chance, on peut parler de ça pour une soirée ou deux, ou même rendu peut-être à 100 000 mains peut-être... Même 100 000 mains sur Internet, c'est la chance qui va déterminer si tu es un joueur gagnant ou perdant. Cent mille mains encore là, je trouve que c'est un petit échantillon. Mais sur le long terme, on ne peut pas vraiment parler de chance au poker. [...] Puis là, quand c'est rendu qu'on calcule à coup de 10 millions de mains jouées en ligne, le hasard il n'y en a quasiment plus là. (Joueur à risque.)

Selon les joueurs des groupes à faible risque et à risque, certaines caractéristiques du surnom choisi par leurs adversaires (présence de chiffres, absence de lettres majuscules, etc.) leur permettent de juger de leur niveau d'habileté. Il est à noter que les surnoms de joueurs rapportés par les participants sont ceux de la simulation de tournoi présentée lors des entretiens de groupe. Les surnoms de joueurs des participants ne sont pas rapportés afin de préserver la confidentialité.

S'ils jouaient pour de vrai, là, en partant, Adam 001, c'est un mauvais joueur. À cause des... Tu sais quelqu'un, un bon joueur, ça fait longtemps qu'il joue sur Internet, il est sur plusieurs sites, il s'est trouvé une propre identité, comme moi, mettons, c'est [information confidentielle], un autre c'est [information confidentielle]. Ils ont tous des noms puis ils gardent tout le temps la même affaire. C'est quelque chose de réfléchi. Puis ils ont tout le temps aussi des... tu sais des majuscules. Tu sais, ils signent... Puis, sans blague, ça l'air ridicule ce que je dis là, mais c'est... ça se confirme là, [...] ceux qui ont des noms avec pas de majuscules puis des chiffres, c'est plus, ha tiens, je vais déposer 50 piasses [dollars], je vais écrire de quoi, mon nom c'est Adam00... puis règle générale, c'est des mauvais joueurs. [...] Killer, puis Do4Love, déjà en partant, je les respecterais plus. Puis EVplays itou [également], tu vois que le gars, il sait déjà c'est quoi l'EV [*expected value* pour espérance mathématique], au moins c'est un début. (Joueur à risque.)

EVplays, EV ça veut dire espérance de gain. Le gars, il connaît quelque chose, fait que c'est vraiment un *grinder* [joueur qui joue serré, qui prend peu de risques dans le but de faire de petits gains réguliers] ou un [joueur] régulier. (Joueur à faible risque.)

Dans le groupe de joueurs à risque, l'idée de pouvoir se refaire (c.-à-d. rattraper les pertes passées en continuant à jouer) grâce à son habileté est mentionnée.

Bien moi, la première année là... parce que c'est comme une drogue, hein! Tu penses que tu as le contrôle là-dessus, ça n'hypnotise pas parce qu'il faut que tu sois alerte à chaque main puis tu apprends, puis tu joues d'autres *games* [parties], puis tu joues d'autres *games* [parties]. Ça n'hypnotise pas comme une machine qui fait « ding ding ding ding ding », mais la première année, tu sais, tu te dis... Tu en gagnes trois, puis tu en gagnes quatre... Moi aussi, j'ai déjà mis 50 piasses [dollars], puis tu sais, le même soir, 175, puis le lendemain soir tu rembarques là-dessus... Tu sais, je veux dire, là, tu te mets... Tu penses là, tu t'imagines que tu vas devenir quasiment millionnaire avec ça, mais là ton 175 redescend à zéro, tu sais, au début là. Tu redescends, tu n'as plus une maudite cenne puis là, tu reprends un 50, tu reprends un 50 jusqu'à ce que la petite madame [la conjointe du participant], elle place une lettre sur ton oreiller [qui dit :] « je pense que tu as des problèmes de jeu ». (Joueur à risque.)

Une autre perception émerge dans le discours du groupe de joueurs à risque, soit le fait d'avoir cru pouvoir devenir de bons joueurs (des joueurs misant à des tables aux mises élevées), voire des joueurs professionnels, mais en être par la suite venu à la conclusion que ce n'était pas réaliste à cause de défaites subies au jeu.

Il y a un bout où j'aurais aimé ça, tu sais, devenir bon, puis faire beaucoup d'argent, peut-être gagner ma vie, mais ce n'est pas aussi facile que ça a l'air là, tu sais. Fait que non, c'est du divertissement. (Joueur à risque.)

Je pense que là, j'ai « topé » [atteint le maximum] au niveau de mes capacités parce que j'ai essayé de jouer plus haut [à des tables aux mises plus élevées], j'ai mangé une volée [j'ai perdu], ça n'a pas été trop long. (Joueur à risque.)

Le thème lié à l'importance de développer ses connaissances sur le poker ressort auprès des groupes de joueurs à risque et problématiques. Ces joueurs mentionnent acquérir cette connaissance de diverses façons : par la consultation de sites Web et de forums, la lecture de livres sur le sujet, la recherche de conseils auprès d'amis ou d'autres joueurs de poker expérimentés et le visionnement d'émissions de poker à la télévision. La pratique régulière est également soulignée par ces joueurs désireux de s'améliorer. La vision des défaites comme des occasions d'apprentissage constitue un autre thème distinguant ces joueurs des joueurs à faible risque. Les défaites les mènent à un questionnement sur leur style de jeu qui leur permet de développer de nouvelles stratégies, selon eux plus efficaces.

Puis j'ajouterais aussi que perdre au poker ça nous apprend à devenir des meilleurs joueurs. Il faut perdre au poker. Il faut avoir des séquences où ça ne va pas bien, parce que c'est comme ça qu'on va développer notre propre stratégie, puis c'est comme ça qu'on va se découvrir en tant que joueur. [...] Moi en tous cas, c'est de cette façon-là que je me suis découvert. Ça a pris un certain temps avant que je commence à gagner, mais je suis venu à bout de comprendre quel joueur j'étais et j'ai eu une très bonne séquence il y a de ça un an et demi. Une vraiment bonne séquence! [...] C'est dû aux défaites que j'ai accumulées. (Joueur problématique.)

La méfiance par rapport à la gestion du jeu de poker en ligne est rapportée dans les groupes de joueurs à risque et problématiques. Des idées telles que les adversaires trichent en jouant de connivence, que la distribution des cartes n'est pas réellement aléatoire et qu'ils sont connus du site Internet apparaissent dans leur discours.

Non, mais, dans la vraie vie, ce que je me rends compte, c'est que ça [la tricherie] se fait plus facilement qu'on peut le prétendre. [...] Sur Internet, j'ai un de mes amis qui fait ça régulièrement. Puis, regarde, ils sont huit, puis ils prennent deux *stack* [deux tapis, soit les piles de jetons de deux joueurs] chaque, fait qu'ils sont seize, un peu éparpillés, puis ils sont capables de, regarde, à un moment donné ils se retrouvent ensemble. À un moment donné, il m'a dit : « J'étais crampé, on était quatre sur une table de neuf. C'est nous autres qui contrôlaient la table ». [...] Tout le monde se couchait tout le temps, on se ramassait tout le *cash* [l'argent] parce que là, les quatre étaient rendus tellement trop *bigs* [forts] pour les cinq qui restaient ». (Joueur à risque.)

Honnêtement, le poker sur Internet est un peu irréaliste. Ça, c'est mon point de vue. J'ai enregistré des mains, j'ai marqué des mains... Ça ne se passe pas tout à fait comme ça dans la réalité. Il tombe très, très souvent des jeux très forts sur Internet. On ne retrouve pas des jeux forts comme ça en réel. Je ne sais pas s'il y en a qui sont d'accord avec ça, mais des grosses mains sur Internet il y en a en masse. [...] Ils te donnent tout le temps une carte gratuite, pour te faire *beter* [miser] plus. [...] Ou ils te donnent une deuxième paire quand l'autre, sa *straight* [suite de cinq cartes], est déjà rentrée. Ils te donnent tout le temps quelque chose pour *beter*. Il y a tout le temps, un quelque chose, un « nanane » [une récompense] qu'ils viennent te donner pour *beter*, puis *beter*, puis *beter*. C'est régulier. [...] Savez-vous qui est-ce que ça avantage? Ça avantage le site qui collecte de plus en plus, plus d'argent parce qu'on rejoue, on rejoue, on rejoue. Et pourquoi? Parce que l'argent qui rentre, ils ont une cote dessus. Plus on joue, plus ils ont une cote. Ce n'est pas compliqué! (Joueur à risque.)

Quand je perds souvent, je vais m'imaginer des affaires. Je m'imagine qu'ils me connaissent sur le site et que c'est arrangé. Je me dis, c'est quoi qui ne marche pas? (Joueur problématique.)

Dans les groupes de joueurs à risque, toutefois, l'hypothèse d'un processus de « mémoire sélective » [se rappeler ce qu'on veut bien se rappeler] est relevée pour expliquer cette impression que les cartes obtenues sur Internet sont plus fortes que celles

qui sont obtenues en jouant en face-à-face (c'est-à-dire en jouant hors ligne). Les joueurs de poker se rappelleraient davantage les *bad beat* [mains perdues alors que la probabilité de l'emporter était (très) grande] que les autres jeux. Les joueurs mentionnent de plus que le rappel de ce type de mains serait probablement accentué sur Internet en raison de la rapidité du jeu.

Mais, en fait, il y a aussi le processus de... bien le processus, que j'appelle mémoire sélective là. [...] Moi-même, il m'arrive des soirées « de caca ». Je me dis après ça, tu parles d'une soirée « de marde », je me suis fait cracker les as, je me suis fait cracker. Mais tu sais, dans le fond, tout ce que tu te rappelles dans le fond... Rappelle-toi les dix mains dans ta vie, tu vas te rappeler rien que les espèces de *bad beat*. [...] Somme toute, en fin d'une soirée, tu te rappelles de tes mauvaises mains. [...] C'est sûr qu'en fin de soirée, ce que je me rappelle, c'est la fois où je me suis fait cracker peu importe ou que j'avais la *flush* [cinq cartes de la même sorte; par exemple, cinq cartes de pique] au *king* [avec le roi comme carte la plus élevée], l'autre avait la *flush* à l'as, je n'avais pas le choix de perdre mon 200 piasses [dollars]. (Joueur à risque.)

Oui, parce que c'est normal que ton as – *king* gagne contre as. C'est normal, fait que tu ne t'en rappelleras pas. Pourquoi tu t'en rappelleras? (Joueur à risque.)

Moi, j'ai comme l'impression que le débit des mains y est quand même... y est pour quelque chose là. Tu sais, tu joues, je ne sais pas, une soirée chez vous entre amis, puis tu vas jouer le même nombre d'heures sur Internet, puis tes mains, tu en vois cinq fois plus. Qu'est-ce que tu vas retenir? (Joueur à risque.)

Les raisons de jouer au poker en ligne

Les thèmes énonçant les raisons de jouer au poker en ligne, similaires dans les trois groupes, sont le plaisir et le divertissement, le désir de faire de l'argent et le souhait de développer ses habiletés. Les joueurs éprouvent du plaisir et de la satisfaction à vaincre des adversaires.

Le poker, c'est que c'est trippant! (Joueur à risque.)

C'est idéal pour faire un peu d'argent quand on est étudiant. Par exemple, si je joue un petit tournoi dans un cours et que je gagne 60 \$, je suis content! (Joueur à faible risque.)

Il faut que je gagne, il faut que j'en dépasse [d'autres joueurs]. Il faut que j'aie le plaisir de dire : « j'en débarque »! (Joueur problématique.)

Moi c'est sûr que les *World series of poker* [Championnats mondiaux de poker] ... Ah non non, c'est sûr qu'en tant que joueurs de poker, on y pense tous [à participer un jour à un tournoi des *World Series of Poker*]! (Joueurs problématiques.)

Les émotions vécues au poker en ligne

Les thèmes liés aux émotions vécues au poker en ligne sont similaires dans les trois groupes. Certaines de ces émotions sont transitoires, en fonction des événements de

jeu rencontrés. Le plaisir, la fierté, l'augmentation momentanée du sentiment de confiance et l'excitation sont des émotions positives rapportées par des joueurs à faible risque, à risque et problématiques.

Les émotions du poker moi, ça... ça me rend total tout heureux là, si on fait un absolu de tout ça là. Gagner, perdre, j'aime ça. (Joueur à risque.)

Et finalement, tu peux gagner cinq-six mains en ligne. Ça augmente beaucoup la confiance. Des fois on dirait la confiance, c'est sur un court laps de temps, ce ne sera pas pour toute la *game* [partie]. Il y a des *up and down* [hauts et des bas]. (Joueur problématique.)

C'est certain que c'est satisfaisant de battre des adversaires... mais ça ne procure pas autant de satisfaction qu'avec un travail. (Joueur à faible risque.)

Les émotions négatives liées au jeu, similaires dans les trois groupes, sont la frustration, la baisse temporaire de confiance en ses habiletés et le stress. La baisse de confiance en ses habiletés peut être causée par différents facteurs tels une suite de pertes, de malchances ou de mauvaises décisions, le fait de posséder moins de jetons que ses adversaires (avoir moins de *stack*), ou encore l'intimidation exercée par un adversaire.

Mine de rien, ça demeure un peu plus dur de garder une certaine confiance en son jeu quand tu as un *downswing* [période trop longue ou trop coûteuse de pertes]. Il faut garder le focus, mais tu sais, je me lève le matin, ok, je suis confiant, [puis là], je viens de perdre 1 000 \$, 2 000 \$ [...], là toc : coup dans les reins en partant, bon bien tu sais, je n'ai plus de confiance. (Joueur à faible risque.)

Certaines émotions telles la frustration ou une baisse du sentiment de confiance peuvent mener les joueurs à agir de façon distraite, impulsive et moins contrôlée – un comportement que les joueurs appellent « *tilt* » dans leur jargon. Des joueurs des trois groupes rapportent avoir déjà « *tilt* ».

Si tu te fais bluffer trop souvent en ligne, ou si tu as une couple de *bad beat*, là tu deviens mal à l'aise avec ton *low stack* [pile de jetons basse], tu n'es plus concentré. (Joueur à faible risque.)

C'est surtout que les mouvements sont répétitifs de la part des mêmes joueurs, ça devient agressant, on se sent agressé, on devient émotif, veut, veut pas, mais il faut garder un contrôle. [...] Je vous le dis, ça prend un très grand contrôle. À l'occasion, oui, effectivement, à un moment donné, je vais dire, mange donc d'la crisse de marde, je me crisse [mets] *all-in* [mettre tous les jetons sur le tapis] devant toi, puis je change de table! (Joueur à risque.)

Dans les trois groupes, des joueurs mentionnent qu'ils tentent le plus possible de contrôler ces dérapages, tout comme ils le font pour maintenir un bon niveau de jugement au jeu. Ils font mention de stratégies comportementales et cognitives leur permettant de garder le contrôle sur leurs émotions. Du côté des stratégies

comportementales, ils rapportent prendre une pause lorsqu'ils se sentent sous l'effet du « *tilt* », ou encore jouer de façon plus serrée et moins agressive qu'à l'habitude.

Un *tilt* là, moi je vais prendre une marche. [...] Il faut que je dégage de la table, je laisse passer les cartes [...]. Un bon joueur de poker ne peut pas se permettre de *tilter*. (Joueur à risque.)

Tilter, c'est quand tu viens de te faire *badbeater* [battre lorsque les probabilités étaient grandes de gagner] solide là... là tu ne réponds plus de tes actes, tu es mieux de tout fermer. (Joueur problématique.)

Je pense que plus les joueurs deviennent habiles au poker, je pense que plus ils sont capables de mettre ça de côté, puis de tout le temps garder la même confiance quoi qu'il arrive, parce que justement, plus tu montes, plus tu perds et plus tu gagnes. C'est encore des plus gros « *up and down* ». Donc il faut être capable de mettre ça de côté pour toujours garder notre confiance. Mais comme ils disent, en situation de *downswing*, quand tu perds non-stop, tu perds confiance en ton jeu, pis là sans t'en rendre compte, tu joues un peu moins bien. Fait que c'est vraiment important de ne pas perdre confiance puis de continuer à bien jouer. (Joueur à faible risque.)

Les joueurs des trois groupes révèlent les stratégies cognitives utilisées pour éviter de *tilter*, à commencer par se convaincre de ne pas chercher à se refaire, puis s'imaginer la situation du point de vue de l'adversaire afin de prendre une distance par rapport à la situation de jeu.

Il faut que tu sois en contrôle de toi. Il ne faut pas que tu te laisses emporter en disant : « Ah! Là j'ai mal joué ça, je vais essayer de me rattraper ». Non! Il faut que tu dises : « J'ai mal joué, je couche la main, puis la prochaine main c'est une autre affaire, ça recommence ». Il y a des gens qui ne sont pas capables de faire ça, donc l'habileté c'est aussi à ce niveau-là. (Joueur problématique.)

Bien moi je trouve que je me suis beaucoup amélioré là-dessus. [...] Tu sais, je ne jouais pas le plus possible, l'histoire de « Ha, il faut que je me refasse, il faut que je me refasse! ». Peut-être en jouer une ou deux [parties] de plus, puis si je me fais cracker encore, je fais bon, c'est fini, puis je vais ruminer pendant une demi-heure là. Mais là aujourd'hui, je rumine, mais pendant deux minutes [seulement]. C'est comme... Bien dans le fond, je me dis, admettons que j'avais *pocket as* [une paire d'as en main], lui avait son *king*, il pogne [reçoit] son [deuxième] *king*, bien je me dis, si ça avait été [l'inverse] là, si j'avais eu *pocket king* [une paire de roi en main], puis lui avait eu son ... J'ai toujours comme une façon de le revoir inversement. (Joueur à risque.)

Discussion

Cette étude visait à décrire les perceptions relatives au hasard et à l'habileté, les raisons de jouer et les émotions des joueurs pratiquant le poker en ligne, puis de

comparer ces variables selon le niveau, chez ceux-ci, de problèmes de jeu. La discussion qui suit reprend les résultats en y incorporant un examen exploratoire des perceptions et en portant une attention particulière aux perceptions possiblement erronées, le cas échéant.

Perceptions relatives au hasard et à l'habileté

Dans les trois groupes, les perceptions des joueurs reflètent qu'ils accordent une grande place à l'habileté et au contrôle des résultats, ce qui converge avec les résultats de Langer (1975), Myrseth et al. (2010) et Dufour et al. (2009). La majorité des joueurs met l'accent sur la pratique et l'accumulation de connaissances afin d'améliorer leurs chances de réussite au jeu. La part d'habileté impliquée au poker a d'ailleurs été largement véhiculée dans les médias dans le passé (Kim, Lee, & Jung, 2013) et sur les sites de jeu au poker en ligne (McMullan & Kervin, 2012), ce qui a pu avoir une influence sur la perception que les joueurs se font du jeu. Dans les groupes de joueurs à risque et problématiques de cette étude, les défaites sont vues comme des occasions de réflexion et de perfectionnement de leurs stratégies de jeu. Il est par contre plausible de penser que cette façon de percevoir les défaites pourrait mener les joueurs à surinvestir le temps et l'énergie consacrés à la pratique et à l'accumulation de connaissances, puis à persévérer au jeu et ce, malgré des défaites répétées. Ainsi, les joueurs qui croiraient que le hasard a peu ou pas d'importance sur le résultat au poker pourraient très bien être en quête d'un niveau d'habileté que très peu atteindront. D'autres études permettraient de vérifier cette hypothèse. Par ailleurs, dans les groupes de joueurs à faible risque et à risque, le thème selon lequel l'habileté au poker en ligne s'observe à long terme, c'est-à-dire sur un très grand nombre de mains jouées, a été mentionné. Cela pourrait signifier que les joueurs sous le seuil du jeu problématique reconnaissent l'influence du hasard sur les résultats du jeu à court terme.

La conceptualisation de l'habileté dans les groupes de joueurs à faible risque, à risque et problématiques de la présente étude repose sur les gains cumulés, puis sur la capacité de considérer différents éléments techniques et psychologiques liés au jeu et à sa structure : la position à la table, le montant des mises, les probabilités, la lecture des adversaires, puis l'autocontrôle de son niveau de jugement et des émotions pouvant l'influencer. Le rôle actif qu'implique la prise en compte de ces différents éléments paraît influencer la perception de contrôle des joueurs sur les résultats du jeu, comme le suggère Langer (1975). Les joueurs qui pratiquent le poker en ligne, qu'ils soient à faible risque, à risque ou problématiques, mentionnent avoir recours à une panoplie de stratégies cognitives et comportementales afin d'éviter les pertes de contrôle et de favoriser la prise de bonnes décisions au jeu. Il y a une différence entre l'illusion de contrôle telle que définie par Langer et la nécessité de contrôle telle que décrite par les joueurs de poker dans cette étude. Bien que l'ensemble des joueurs reconnaisse l'importance de l'autocontrôle, leur efficacité à maintenir le contrôle pourrait néanmoins différer en fonction du niveau, chez eux, de problèmes de jeu. En effet, Browne (1989) a observé une durée et une intensité de *tilt* plus importantes chez des joueurs problématiques que chez des joueurs récréatifs et professionnels, ce qui pourrait représenter des difficultés de gestion des émotions négatives associées au jeu et pouvant les mener à la perte de contrôle.

La surestimation de son habileté personnelle. Les résultats de la présente étude suggèrent qu'un biais dans l'évaluation de son habileté personnelle, surtout lorsqu'il est question de pouvoir se refaire (soit l'un des critères du DSM-IV), pourrait jouer un rôle dans la présence de problèmes liés au jeu chez les joueurs de poker en ligne faisant partie du groupe « à risque ». Les perceptions de pouvoir se refaire grâce à leur habileté et d'avoir déjà cru pouvoir devenir joueur professionnel reflètent une évaluation d'habileté personnelle élevée, voire possiblement surestimée, chez les joueurs à risque. Ces joueurs rapportent un processus selon lequel, avec leur expérience de jeu et les défaites encaissées lors des tentatives de jouer à des tables aux limites de mises plus élevées, la perception de leur habileté personnelle se trouve confrontée à la réalité. Ils en arrivent à une perception plus juste de leur habileté et en viennent à la conclusion qu'il n'est pas aussi facile qu'ils le croyaient de devenir joueur professionnel. Ce processus reflète bien celui observé par Bjerg (2010) auprès d'un joueur problématique lors d'une entrevue individuelle approfondie. Ce joueur, convaincu d'être plus habile qu'une bonne partie de ses adversaires, disait avoir de la difficulté à s'empêcher de jouer à des tables aux limites de mises de plus en plus importantes, jusqu'à ce qu'il joue à un niveau où il n'était plus en mesure de les remporter. Cela tend à nous faire croire qu'uniquement les très bons joueurs jouent aux tables à mises élevées, mais est-ce vraiment le cas? Il y a nécessairement des perdants même à ces tables. Les conséquences néfastes potentielles d'une surestimation de son habileté sont bien illustrées dans les propos d'un joueur à risque de l'étude. Ce joueur croyait pouvoir s'enrichir dès ses débuts au poker en ligne, ce qui l'a mené à persévérer au jeu malgré l'accumulation de défaites. Ce processus de surestimation de leur habileté auquel font face les joueurs de poker pourrait concorder avec les résultats obtenus par Wood et al. (2007) auprès d'un plus grand échantillon de joueurs de poker, résultats selon lesquels les joueurs problématiques et pathologiques sont les moins susceptibles d'évaluer leur habileté personnelle au-dessus de la moyenne. En effet, la surestimation de l'habileté personnelle pourrait intervenir au cours du développement des problèmes de jeu, alors que le retour à une perception plus juste de son habileté pourrait indiquer qu'un problème de jeu s'est installé et que le joueur fait face aux conséquences qui y sont liées. Les joueurs problématiques de l'échantillon n'ont cependant pas discuté de cet aspect. La réalisation d'une étude de nature longitudinale portant sur l'estimation de l'habileté personnelle des joueurs de poker en ligne permettrait de mieux décrire l'évolution de leurs perceptions de leur habileté personnelle en fonction de leur niveau de problème de jeu.

Bien que les joueurs de poker en ligne présentant des niveaux de problème de jeu différents puissent percevoir de façon commune que l'habileté prévaut sur le hasard à ce jeu, des joueurs des groupes à risque et problématiques semblent se distinguer des joueurs à faible risque en raison de la surestimation de leur habileté personnelle.

Raisons de jouer au poker en ligne

Il est intéressant de constater que les raisons de jouer rapportées ne permettent pas de départager les groupes de joueurs qui présentent différents niveaux de problème de jeu au poker, dans cet échantillon. Les principales raisons de jouer au poker en ligne évoquées dans les groupes de joueurs à faible risque, à risque et problématiques sont

le plaisir ou le divertissement, le désir de faire de l'argent et l'intention d'y développer ses habiletés. Comme le révèle un joueur problématique de l'étude, le plaisir de jouer semble intrinsèquement lié à l'habileté personnelle perçue.

Lorsqu'on explore davantage les dires des joueurs de l'étude, on retrouve des raisons de jouer non directement exposées, mais à peine cachées. Par exemple, lorsqu'un des joueurs à risque mentionne « tu peux aspirer à un paquet d'affaires », il nous montre qu'il rêve à quelque chose. Est-ce gagner beaucoup d'argent ou obtenir de la reconnaissance d'autrui? Un des joueurs problématiques mentionne en parlant des autres joueurs qu'il faut qu'il en débarque, qu'il en dépasse. Cela montre une autre raison de jouer qui est liée au plaisir d'être meilleur que d'autres. Est-ce un besoin de reconnaissance ou de valorisation? Un joueur rapporte également qu'il rêve de participer au prestigieux tournoi des séries mondiales de poker. N'est-ce pas là une raison de jouer? Ainsi, bien que le besoin de reconnaissance ou de valorisation n'ait pas été rapporté directement par les joueurs lors des entretiens de groupes, les résultats de Bradley & Shroeder (2009) suggèrent qu'il peut s'agir d'une motivation importante pour les joueurs de poker. Les résultats de Bouju et al. (2013) ajoutent que la pratique du poker fournirait aux joueurs problématiques une image d'eux-mêmes rehaussée par rapport à comment ils se perçoivent dans la vie de tous les jours.

Émotions liées à la pratique du poker en ligne

Les émotions rapportées dans les trois groupes de joueurs de cette étude se révèlent similaires. Une variété d'émotions positives et négatives sont vécues relativement à la pratique du poker. Les événements de jeu rencontrés amènent les joueurs, qu'ils soient à faible risque, à risque ou problématiques, à vivre des émotions intenses qu'ils tentent tant bien que mal de gérer. Comme les résultats de Browne (1989) le suggèrent, il est possible que ce qui distingue les joueurs de poker présentant un problème de jeu des joueurs à faible risque d'en présenter un soit la fréquence et l'intensité de certaines émotions, comme le *tilt*. Ceux de Palomäki et al. (2012) et de Mitrovic & Brown (2009) les incitent à proposer, par ailleurs, que les joueurs de poker problématiques éprouvent de la difficulté à prendre conscience de leurs émotions et à les gérer adéquatement. Les recherches futures devraient peut-être porter spécifiquement sur le processus de gestion des émotions des joueurs de poker en ligne afin de mieux comprendre son rôle dans le développement des problèmes liés au jeu. Notamment, il pourrait être intéressant d'évaluer si l'état de *tilt* a une influence sur les perceptions relatives au hasard et à l'habileté entretenues par les joueurs en situation de jeu en ligne.

Le contrôle sur les résultats du jeu grâce à l'habileté : une illusion?

Certaines perceptions émanant des entretiens de groupe portent à croire que des pensées erronées sont entretenues par les joueurs de poker, même si ce jeu comporte une composante d'habileté. Rappelons qu'aux jeux de hasard et d'argent sans composante d'habileté, les joueurs, qu'ils présentent ou non un problème de jeu,

tombent souvent dans le piège de faire des liens entre des événements de jeu pourtant indépendants. Ils peuvent développer des superstitions, avoir l'illusion de contrôler les résultats du jeu alors que ceux-ci reposent sur le hasard, et même croire qu'ils sont « dus pour gagner » après avoir perdu sur une longue période de jeu. Malgré le fait que plusieurs perceptions justes ont été relevées, voici quelques exemples de perceptions soulevées par les participants qui mériteraient d'être étudiées afin de vérifier leur caractère erroné ou non.

Dans le groupe de joueurs à faible risque, il est postulé qu'en vérifiant les résultats des parties antérieures d'un adversaire il est possible de juger l'état d'esprit dans lequel il se trouve et d'en déduire ses actions de jeu ultérieures. Par exemple, si cet adversaire vient de perdre dix parties successives, cela voudra dire que sa confiance est ébranlée et qu'il se « couchera » fort probablement devant un « gros *raise* [relance] ». Cette perception peut être débattue, car qui sait dans quelles circonstances le joueur a perdu et quel était le niveau d'habileté de ses adversaires lors de ces dix parties. De plus, l'adversaire pourrait tout aussi bien « suivre le gros *raise* » plutôt que « se coucher », s'il croit que le gain avec cette main le remettra sur le chemin de la victoire.

Dans le groupe de joueurs à faible risque, il est prétendu qu'il est possible de savoir lorsqu'on est susceptible de se frustrer en jouant et que, si cela se produisait, on serait capable de se calmer. Pourtant, l'état de *tilt*, soit une frustration intense menant à de mauvaises décisions de jeu, est rapporté dans les trois groupes de joueurs. Il est donc possible que le fait de se croire capable de se calmer lors d'événements de jeu suscitant des émotions négatives intenses relève parfois de la surestimation de son habileté.

L'idée de pouvoir se refaire grâce à son habileté, soulevée dans le groupe de joueurs à risque, mérite qu'on s'y arrête. Aux JHA sans composante d'habileté, cette idée représente l'un des critères servant à diagnostiquer la présence du jeu pathologique. Or, au poker, compte tenu de la composante « habileté » jumelée à la composante « apprentissage », il pourrait y avoir lieu de se demander si les joueurs qui possèdent cette perception font erreur ou pas. Pour illustrer qu'il s'agit bien là d'une croyance erronée potentielle, imaginons un joueur d'échecs qui perd contre un autre joueur. Si le perdant est moins habile que le gagnant et qu'il s'entête à tenter de « se refaire » contre ce même joueur, on peut songer aux problèmes que cela pourra causer au joueur perdant s'il continue à nourrir cette pensée. Pour « se refaire », il devra jouer contre des joueurs moins habiles que lui aux échecs. Au poker, le hasard est bien entendu plus présent qu'aux échecs, mais comme cela est mentionné dans le groupe de joueurs à risque, il ne faut pas tenter de se refaire, mais plutôt simplement passer à d'autres parties contre des joueurs moins habiles tout en acceptant les pertes précédentes comme des faits. Car si on joue contre des joueurs de même habileté, alors le hasard aura beaucoup d'impact sur le résultat du jeu, et la possibilité de se refaire ne dépendra plus de l'habileté du joueur. Pire encore, si on joue contre des joueurs plus habiles, alors la notion de « se refaire » devient un problème de fixation qui mènera probablement aux problèmes de jeu. De plus, le joueur doit être conscient

que si lui-même peut s'améliorer, alors les autres aussi le peuvent. La question est : jusqu'à quel point?

Dans le groupe de joueurs à risque, il est rapporté qu'il faut connaître son propre calibre de joueur et ses limites, car plus on mise gros, plus les joueurs sont bons. Cela semble juste de dire que de bons joueurs se retrouvent aux tables à mises élevées, car les *fish* (poissons ou joueurs faciles à battre) se regroupent généralement aux tables à faibles mises en raison de leur inexpérience ou de leur manque d'habileté. En revanche, il y a là une contradiction avec l'affirmation tirée des groupes de joueurs à risque et problématiques selon laquelle il faut perdre pour apprendre. Comme si l'apprentissage avait ses limites et n'était en fait justifié que lorsque les pertes sont minimales. Pourquoi les joueurs arrivent-ils à un niveau où ils semblent ne plus s'améliorer et cessent à ce moment de se dire qu'il faut perdre pour apprendre, pour se ranger derrière la pensée qu'il faut savoir se limiter plutôt que de tenter de devenir meilleur? Il semble qu'au début de leur pratique du poker, ils veulent tous devenir meilleurs, mais à un moment donné, certains vont changer d'idée et se résigner au fait qu'ils ne peuvent pas s'améliorer, alors que d'autres vont persister malgré les défaites, en croyant pouvoir un jour développer leur propre stratégie. Cette vision de l'apprentissage doit être explorée davantage afin de déterminer si des perceptions erronées y sont associées et si elle peut avoir une influence sur la présence de problèmes de jeu au poker.

Deux perceptions mentionnées dans les propos des groupes de joueurs à risque et problématiques – soit de penser que le jeu en ligne est « arrangé » (cartes obtenues en ligne plus fortes que hors ligne) et que les adversaires trichent – pourraient refléter une tendance à justifier les défaites par des facteurs autres que le manque d'habileté personnelle. Aux JHA sans composante d'habileté, la tendance à attribuer ses succès à son habileté et ses défaites à des sources d'influences externes constitue une distorsion cognitive connue sous le nom d'« attributions flexibles » (Baboushkin, Hardoon, Derevensky et Gupta, 2001). Il s'agit d'une perception qui incite à la poursuite du jeu malgré les défaites, protégeant le sentiment d'habileté des joueurs. Fait intéressant, il est ressorti du groupe de joueurs à risque de cette étude, contrairement au groupe de joueurs problématiques, qu'un processus de mémoire sélective pouvait donner l'impression d'obtenir des mains à forte probabilité de gain plus fréquemment en ligne que hors ligne. Les joueurs tendraient à se rappeler davantage les mains perdues de façon peu probable que les mains gagnées, et ce phénomène serait amplifié par la rapidité du jeu en ligne. Ainsi, telle qu'elle émerge du discours du groupe de joueurs à risque, l'idée de tricherie ou de truquage du jeu en ligne semble être le fruit d'une certaine distorsion de la réalité. Même si des cas de fraude ont été documentés dans le passé au jeu en ligne (Stewart, Ropes et Gray, 2011), il est possible que le degré de conviction concernant la tricherie et le truquage distingue les joueurs à faible risque des joueurs à risque ou problématiques au poker en ligne, ce qui reste néanmoins à être vérifié par des études futures.

Des perceptions erronées surgissent dans les tentatives d'interprétation que certains joueurs font des surnoms de leurs adversaires. Dans le groupe de joueurs à risque, on

mentionne pouvoir deviner si un joueur est bon en se fiant à son surnom et on va jusqu'à dire que la plupart des joueurs qui ont tel ou tel type de surnoms sont généralement de mauvais joueurs. Le surnom d'un joueur demeure une information sujette à la manipulation, et les interprétations basées sur ses caractéristiques s'avèrent donc peu fiables. Les résultats de Wood et al. (2007) montrent que les joueurs de poker problématiques ont tendance à manipuler l'image qu'ils dégagent à travers leur surnom de joueur, notamment par le *gender swapping* (changement de genre). Cette stratégie consiste à se donner un surnom laissant supposer un genre opposé au sien. Comme le poker pratiqué en ligne est un jeu impliquant une part d'habileté qui requiert la maîtrise de plusieurs éléments, il est possible que les joueurs, même s'ils ne présentent pas de problème de jeu, tombent dans le piège de vouloir « tout interpréter », même le surnom des joueurs, ce qui ne peut logiquement pas être en lien avec le résultat ou l'habileté à jouer. Par contre, cette tendance à interpréter peut être associée à une habileté à choisir un surnom trompeur, qui vise à déjouer les joueurs qui se fient à des indices superficiels. Il demeure probable que, en comparaison des joueurs présentant des problèmes de jeu, les joueurs à faible risque deviennent plus sélectifs à l'égard des informations qu'ils interprètent à mesure qu'ils acquièrent de l'expérience au jeu. Cette interprétation rejoint les résultats de Lakey, Goodie et Campbell (2007), qui ont observé que les joueurs de cartes réguliers présentant des problèmes de jeu montrent davantage de difficultés à distinguer les situations de jeu sur lesquelles ils ont du contrôle des situations de jeu sur lesquelles ils ont moins de contrôle.

Finalement, des études supplémentaires pourraient poursuivre la définition des perceptions erronées des joueurs de poker. Cela permettrait l'élaboration d'instruments de mesure des perceptions erronées plus appropriés à cette clientèle et le développement de programmes de traitement mieux adaptés aux joueurs de poker.

Limites de l'étude

Cette étude qualitative ne visait pas la représentativité de la population des joueurs de poker en ligne. Ses résultats se limitent aux groupes de joueurs étudiés. Par ailleurs, il est possible qu'un thème soulevé par les joueurs d'un groupe soit partagé par les joueurs d'un autre groupe, même si ces derniers n'ont pas soulevé le thème en question. Il est également pensable que certains joueurs n'aient pas mentionné leur désaccord avec les autres.

Il n'a pas été possible de sonder les perceptions, émotions et raisons de jouer des joueurs de poker pathologiques. Malgré la diversité des stratégies de recrutement utilisées, un nombre insuffisant de joueurs pathologiques a manifesté un intérêt à participer à l'étude. Il est possible de penser qu'il soit difficile pour un joueur de poker pathologique de se révéler à d'autres joueurs en raison de la perception du poker comme un jeu où l'habileté prévaut. La réalisation d'entrevues individuelles plutôt que de groupe favoriserait peut-être la participation et le dévoilement de ces joueurs. Par ailleurs, peu de joueurs ont voulu participer à l'étude, et il est difficile de savoir pourquoi ils ont refusé. Les études futures auraient avantage à recueillir des

informations sur les joueurs qui contactent les chercheurs, mais qui choisissent de ne pas participer à l'étude. Il est possible que, dans les deux études réalisées, la longueur de l'entrevue téléphonique initiale ait découragé certains joueurs qui ne souhaitent pas investir autant de temps dans la participation à une étude.

Conclusions

Cette étude a permis d'apporter un éclairage sur les distinctions dans les perceptions relatives à l'habileté qu'entretiennent des joueurs pratiquant le poker en ligne, mais qui présentent différents niveaux de problème de jeu. Les raisons qui les poussent à jouer et la nature des émotions qu'ils vivent au jeu semblent similaires dans tous les groupes, qu'il s'agisse de joueurs à faible risque de présenter un trouble du jeu, à risque ou problématiques. Toutefois, à la différence des joueurs à faible risque, on observe une perception dans les groupes de joueurs à risque et problématiques : la surestimation de l'habileté personnelle. Cette perception devra être évaluée auprès d'un plus grand échantillon de joueurs de poker en ligne afin de voir si elle se généralise. Il serait intéressant de vérifier si elle prédit efficacement la présence de problèmes de jeu au poker en ligne. Par ailleurs, la poursuite des recherches sur les rôles respectifs du hasard et de l'habileté dans les résultats au poker en ligne permettrait de quantifier dans quelle mesure les joueurs présentant des problèmes surestiment la part d'habileté impliquée à ce jeu.

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The Pathological Gambler and his Spouse: How do their Narratives Match?

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Abstract

This case study compares the narratives of a pathological gambler and his spouse concerning family, marital and individual matters. It does so through identifying each of the key players' narratives individually (analysis of self-report questionnaires) and interactively (couples therapy sessions analysis). The results show that the gambler has a rather more positive view of gambling-related issues than does his spouse, and this fact is most apparent when it comes to marital and family issues. The gambler's perspective is less positive when it comes to non-relationship issues (financial and professional issues). A few hypotheses are put forward to explain these results and these are summarized in three effects: denial, idealization/guilt relief, and disappointment/retaliation. Some implications for clinical practice are also identified, such as the need to set therapy objectives which are truly shared by both members of the couple, as well as guidelines for future research, such as studies focused on gender differences.

Keywords: gambler and spouse perspective, family, marital and individual variables

Résumé

Cette étude compare les récits d'un joueur pathologique et de sa conjointe concernant des questions familiales, conjugales et individuelles. La démarche a consisté à cerner chaque récit individuellement (analyse de questionnaires d'auto-évaluation) et en interaction avec l'autre (analyse de séances de thérapies de couple). Les résultats indiquent que le joueur a une perception plus positive des problèmes liés au jeu que sa conjointe et que cette caractéristique est plus marquée lorsqu'il est question des enjeux conjugaux et familiaux. La perception du joueur est cependant moins positive lorsqu'il est question d'enjeux non relationnels (enjeux financiers et professionnels). Les quelques hypothèses proposées pour expliquer ces résultats peuvent être résumées par les trois effets suivants : le déni, l'idéalisation/le soulagement de la culpabilité, la déception/les représailles. L'étude signale également les conséquences des résultats dégagés sur la

pratique clinique, comme la nécessité d'établir des objectifs de thérapie qui sont véritablement partagés par les deux partenaires du couple, et dresse des lignes de conduite pour des recherches futures, par exemple sur les différences entre les hommes et les femmes.

Introduction

Theoretical Framework

Pathological gambling (DSM IV-TR) (American Psychiatric Association, 2000) or gambling disorder (DSM V) (American Psychiatric Association, 2013) is an addictive behaviour defined in part by its strong negative impact on the individual, and on the relationships between gamblers (American Psychiatric Association, 2013) and those closest to them (Hing, Tiyce, Holdsworth, & Nuske, 2013). (Examples of the other characteristics include concern with gambling, repeated gambling losses, and the need for ever higher wages.) Spouses may be particularly affected (Ferland et al., 2008; Lorenz & Shuttlesworth, 1983); it is estimated that eight out of ten spouses suffer directly from the consequences of this pathology (Bertrand, Dufour, Wright, & Lasnier, 2008). A recent study indicates that concerned significant others were most often the intimate partners of problem gamblers and chiefly females less than 30 years of age (Dowling, Rodda, Lubman, & Jackson, 2014). Pathological gambling is related to a number of family problems (McComb, Lee, & Sprenkle, 2009). Dowling et al. (2014) found that gamblers' various family members display a similar profile, with emotional distress, and negative impacts on familial relationship, social life, finances, employment and physical health. In fact, different family members are affected by an individual's problem gambling: (1) the filial subsystem (gamblers' children) can experience risks to health and well-being in general, along with symptoms of depression and behavioural problems (Darbyshire, Oster, & Carrig, 2001), (2) the parental subsystem (the gambler's parents) has been reported to develop emotional problems (e.g., fear, guilt, anger) (Moody, 1989), and (3) the marital subsystem (Lee, 2002b). Regarding (3), certain authors, including Lee (2002b), consider that the negative effects of gambling are exhibited most abundantly in this particular subsystem. Other authors (Dowling et al., 2014) found evidence that there were few significant differences in impacts of gambling problem between family members (children, partners, parents and siblings). Marital problems are associated with problem gambling in a variety of different ways (Garrido-Fernández, Jaén-Rincón, & García-Martínez, 2011; McComb et al., 2009), including psychological suffering, anger, guilt, frustration, resentment (Lorenz & Yaffee, 1986; Steinberg, 1993), sexual dissatisfaction (Lorenz & Yaffee, 1986), lying, deceit, attempts to hide or repair damage caused by the problem (Dickson-Swift, James, & Kippen, 2005), and violent behaviour (Chan, Jackson, Shek, & Dowling, 2012). Causes and effects are not clear. This lack of clarity highlights the circular nature of this problem (Cunha & Relvas, 2014a).

But do gamblers and their spouses perceive pathological gambling and the problems associated with it in the same way? Lorenz and Yaffee' (1989) study ($N = 151$ couples with a pathological gambler member) found that the responses of gamblers and spouses diverged regarding sexual satisfaction and dissatisfaction: 34% of the gamblers indicated the sexual relationship was satisfactory for both partners, whereas only 19% wives responded accordingly. The area where there was an even larger discrepancy in opinions was parenting, where half of spouses disagreed with gamblers who stated that they spent enough time with their children. The most common feelings experienced by gamblers are (1) a desperate need for money, (2) guilt for making others suffer, and (3) depression. On the other hand, the most common feelings experienced by spouses are anger, depression, and a feeling of distance from the gambler. Finally, regarding physical symptoms, gamblers reported a greater diversity of symptoms experienced. More recently, a qualitative exploratory study ($N = 7$ couples with a pathological gambler member) (Ferland et al., 2008) found that spouses perceive the consequences of gambling as more serious than do the gamblers, emphasising difficulties in the gambler's social life, whereas gamblers themselves are more inclined to perceive as serious the negative consequences of gambling on their own psychological well-being. Couples' views seem to converge when it comes to financial aspects (Ferland et al., 2008).

Furthermore, the view of recovery from problem gambling as a couples' issue (Strong & Sametband, 2011) has gained importance over the last several years (Bertrand et al., 2008; Lee, 2009; McComb et al., 2009). However, little is known about these couples themselves and, in particular, about the spouses' marital experiences. These facts emphasize the need for greater understanding of partners' experiences (Hing et al., 2013) and point to the need for additional research to compare partners' perceptions with gamblers' perceptions. Such research could be helpful, for example, to develop more accurate couples interventions for pathological gambling and to promote public health initiatives that protect gamblers, partners and their families from the damaging effects of gambling problems.

Objective

This case study aimed to compare the narratives of a gambler and his spouse on family, marital and individual issues by identifying the narratives of each member of the couple individually (analysis of self-report questionnaires) and interactively (analysis of couples therapy sessions).

Method

Methodological Framework

Case studies were one of the first research tools used within qualitative research and they are currently widely applied in various fields—psychology, history and education, among other—to generate content-specific scientific knowledge (Starman, 2013).

Case studies work to yield a deeper understanding of the subject in question, a need inherent to qualitative methods in general. Case studies deal with causal complexity, can analyze the hypothetical role of causal mechanisms in individual cases, and are robust as a tool for generating new hypotheses (George & Bennett, 2005). For all these reasons, case studies are particularly suitable for achieving the objective of this study—to identify and compare the narratives of a gambler and his spouse on family, marital and individual issues. We employed an instrumental case study method, one which served two purposes aside from an understanding of the case itself (Stake, 1995). Specifically, this study acted as a test for future research, and shed light and clarity on certain results found in previous studies.

We would like to draw attention to the data collection and analysis methods used in this study, specifically qualitative analysis of self-report questionnaires (see Data Collection and Data Analysis Procedures). The development of this qualitative method of analysis of self-report questionnaires emerged from the need to obtain detailed and more descriptive information on the subject of this study.

Couple Selection

The couple was selected from the cases of a family therapy centre of the Faculty of Psychology and Education Sciences of the University of Coimbra. The selection criteria required (1) a couple in which one partner was a pathological gambler, and (2) the referral for therapy that was directly related to the gambling problem. This case was the only one which met these criteria.

Therapy Demand

The therapy referral was made in 2012 and targeted gambling abstinence. Therapy was a condition set by the gambler's employer and the gambler himself felt no need for it as he believed he was "cured." However, he felt pressured to participate in couple therapy, first by his employer, but also then by his spouse. After four fortnightly therapy sessions, the gambler was dismissed from work and then dropped out of therapy.

Questionnaires

The research protocol consisted of a questionnaire on socio-demographic characteristics and of Likert-scale self-report instruments adapted for the Portuguese population (see Appendix A). The measures evaluated participant demographics, current family functioning, marital adjustment, psychopathological symptoms, and congruence (i.e., relation with self, others, and context). The protocol included the Systemic Clinical Outcome and Routine Evaluation 15 scale (SCORE-15) (Stratton, Bland, Janes, & Lask, 2010; Portuguese version by Vilaça, Silva, & Relvas, 2014), the Quality of Life scale (QOL) (Olson & Barnes, 1982; Portuguese version by Simões, 2008), the Dyadic Adjustment Scale (DAS) (Spanier, 1976; Portuguese version by Lourenço, 2006), the Congruence Scale (CS) (Lee, 2002a; Portuguese version by Cunha, Silva, Vilaça,

Gonçalves, & Relvas, in press) and the Psychopathological Symptom Inventory (BSI) (Derogatis & Spencer, 1982; Portuguese version by Canavarro, 1999).

Data Collection and Data Analysis Procedures

The couple was asked to be present thirty minutes before the first session. It was thus possible to explain the study in more detail. Its purpose/objective, voluntary nature, participation confidentiality, and the need to record all sessions on video, were each explained, and informed consent was obtained. Each member of the couple completed the questionnaires.

The data analysis involved both study of the questionnaire data, and study of the of the data garnered from therapeutic sessions. This methodological triangulation aimed to (1) increase the study's internal validity and (2) test the qualitative analysis of the data from the questionnaires, by comparison with the data garnered from therapeutic sessions, a more consensual and recognized method for content analysis (i.e., concurrent validity).

The items marked with extreme Likert-scale scores (e.g., “very good description,” “very poor description”) were used as a structural basis to build the narrative of each participant. This option ensured that the items were faithful descriptors for the characteristics they represented. Subsequently, a search was made to find which of the items were marked both by the gambler and spouse (coincident items) and if there were any convergence in extreme ratings. For example, if both partners marked item “x”, it was then ascertained whether they classified it with the same extreme score (convergent item) or if they were at opposite ends (divergent item). With the aim of understanding the most relevant psychopathological symptoms, for the analysis of the BSI, only the two highest scores (“often” and “very often”) were taken into account, thus ignoring the lower extremes (“never” and “rarely”). Regarding the DAS, since hardly any extreme values were marked, an item to item comparison was made of the couple's responses (regardless of whether they were at opposite extremes of the response scale) to avoid the loss of useful data. For example, the item “considering a divorce, separation or ending the relationship” could be classified on a scale from “always/all the time” to “never.” Some very interesting data emerging from the gambler's (“rarely”) and spouse's (“sometimes”) divergent perspectives would have been lost if we had only considered extreme values.

Therapy sessions followed the subsequent protocol: session one outlined the purpose of therapy and present marital relationship; session two assessed the couple's history and problem history; session three assessed family history (family of origin) and parallels between marital history and problem history; session four did not follow protocol definitions but focused on the couple's concerns regarding the recent job loss of the gambler. They were video recorded, transcribed, and a content analysis (theme/category) was then performed (Oliveira, 2008) without the use of software. The session transcript was read several times to remove data of no use to the research

purpose (e.g., pre-session social conversations, therapist interventions). The conversation theme was used as a registration unit (RU), which could consist of sentence parts, sentences, or paragraphs. The RUs were then selected and organized by themes. These were pre-established based on the literature, while remaining completely open and flexible and were altered as RUs were classified. The last task was to group these themes into categories bearing in mind the literature on the subject. The theme quantification was made on number of RUs.

Results

Extracted Narratives from the Qualitative Analysis of Questionnaires

The expressions chosen to present these results were retrieved from the assessment questionnaires Likert scale descriptors. For example, the terms “satisfaction” and “dissatisfaction” were used in the QOL results presentation because the Likert scale of this instrument taps variations in satisfaction. Thus, the following narratives were created for each partner, using the explicit item descriptors which they had marked.

Family Functioning (SCORE-15)

Gambler	Spouse
<i>We are honest and trust each other [trust]. We do not blame others when things go wrong and when people get angry they do not deliberately ignore each other [understanding and respect]. We do not experience crisis after crisis and we cope with everyday problems [family problems/crisis]. We listen when someone speaks and, usually, we speak with each other on things that matter to us [communication]. The words that describe our family best are love, caring and friendship [emotional support and positive feelings]. What bring us to therapy are my own professional issues.</i>	<i>We are not honest and do not trust each other [trust]. We do not blame each other when things go wrong but when people get angry they deliberately ignore one another [understanding and respect]. Crises keep on coming and day-to-day problems are hard to deal with [family problems/crises]. The words that best describe our family are: “We do not talk much about problems and we put them off to the very end” [communication]. What bring us to therapy are our current economic and social problems.</i>

Family Quality of Life (QOL)

Gambler	Spouse
<i>I feel very pleased with my family, with my marriage, the relations I have with my family [family], as well as with my children [children]. Also my friends bring me a great deal of satisfaction [friends]. I have great living conditions with plenty of room for my own needs as well as my family's [housing and space]. I am very happy with the household chores of my family [household chores]. Also the educational programmes on improving married and family life [media and community], community leisure facilities and the neighbourhood where we live [space and community] are also fine. In terms of work, I feel secure and pleased with my wage as it is enough for my family's needs. Regrettably, there is not so much money for future needs and also my savings level is unsatisfactory [financial aspects].</i>	<i>I am dissatisfied with my family, my marriage and the relationship with my family [family]. Nevertheless, my children give me enormous satisfaction [children]. Although I am very happy with my home regarding the amount of space for family needs [housing and space], I am very unhappy about household chores done by other family members [household chores]. Generally, I am satisfied about what the community offers like newspaper quality, shopping, security and even healthcare; I am not so pleased with the community religious life [media and community]. The community leisure facilities and neighbourhood conditions where we live [space and community] are very satisfactory. Regarding my job conditions, I feel secure [job security] and I am satisfied with my education level [education], although I am not happy with my wage. Regrettably, it is hard to deal with family needs and cope with financial emergencies. I am dissatisfied with money issues regarding the family's future needs, as well as savings level [financial aspects]. Nevertheless, it is great to have free time for myself and for my family and also to earn money [time]. I am not satisfied with my health or that of my family [health].</i>

Marital Adjustment (DAS)

Gambler	Spouse
<i>My wife and I agree on such matters as: religious issues [religion]; friends [friends]; quality time when together; spare time [time]; decisions about life; conventionalities; life's philosophy; goals, objectives and other important matters; important decision taking [attitude towards life]; leisure matters [leisure matters]; affection; sexual life [intimacy]; how to handle parents and parents-in-law [family]. I've hardly thought about divorce and never regretted getting married. Most of the time I think that things between me and my wife are fine. I think our relationship is quite happy [assessment of marriage]. I or my wife rarely storm out of the house after an argument, in fact we rarely have any arguments or get on each other nerves [marital conflict]. Most of the times I share feelings with my wife, I kiss her every day, once or twice a week we have stimulating talks and more than once a day we have a calm chat on some topic, we laugh together more than once a day [intimacy]. We work on something together once or twice a week [sharing].</i>	<i>Me and my husband agree on several matters like: religious matters [religion]; friends [friends]; quality time spent together; spare time [time]; decisions about life [attitude towards life]. Household chores is a theme on which we mostly disagree [household chores]. Sometimes I consider a divorce and regret getting married. Although most of the time I feel that things between me and my husband are fine, I regard our relationship as a little unhappy [assessment of marriage]. Neither I nor my husband ever storm out of the house after an argument, in fact, we rarely argue even though we sometimes get on each other's nerves [marital conflict]. Sometimes I share feelings with my husband and kiss him almost every day. Once or twice a week we have stimulating talks and a calm chat on some topic. We laugh together more than once a day [intimacy]. We work together on something less than once a month [sharing].</i>

Congruence (CS)

Gambler	Spouse
<i>Generally, in life, I do not react unreasonably in conflict situations [reaction to conflict] and I know that I am able to solve the problems [resources to solve problems], I believe in myself [self-confidence] and accept my past [acceptance of the past]. I do not feel stress when I am with other people [social tension].</i>	<i>Generally in life, I do not react unreasonably in conflict situations [reaction to conflict] and I do not feel stress when I am with other people [social tension]. I do not feel any inner conflict [inner conflict], I believe in myself [self-confidence] and accept my past [acceptance of the past]. God is an important pillar in my life: I feel connected and related to Him and I have a positive image of Him and trust His goodness [God]. I do not feel guilty easily or if someone is unhappy [guilt].</i>

Psychopathological Symptomatology (BSI)

Gambler	Spouse
<i>Sometimes, I feel on edge, with an inner stress [anxiety].</i>	<i>Very often I feel on edge, with an inner stress, I feel a sudden fear without any particular reason; it is a state of stress and being upset, in such a way that very often I cannot calm down or stop. It is a physical thing... I feel a pain over my chest and lose my appetite very often. I cannot count on most people any more [anxiety, depression, somatisation, etc.].</i>

Qualitative Analysis of Questionnaires

Family Functioning (SCORE-15). Eleven items were marked (extreme scores) by both the gambler and spouse but only four had a convergent perspective, for family strengths. Divergences between dyad marital perspectives (items = 7) arise from the spouse marking as difficulties what the gambler saw as strengths (see Figure 1).

The difficulties pointed out by the spouse (items = 7) concentrate on three themes: family problems/crisis (items = 3), communication (items = 1), understanding and respect (items = 1) and trust (items = 2). The convergent strengths (pointed out both by the gambler and spouse) (items = 4) concentrate on the issue of understanding and respect (items = 4). The competences/strengths marked solely by the gambler (items = 11) concentrate on emotional support and positive feelings (items = 3), communication (items = 3), family problems/crisis (items = 3) and trust ($n = 2$) themes. The last three themes are also contained in the spouse's "difficulties narrative/

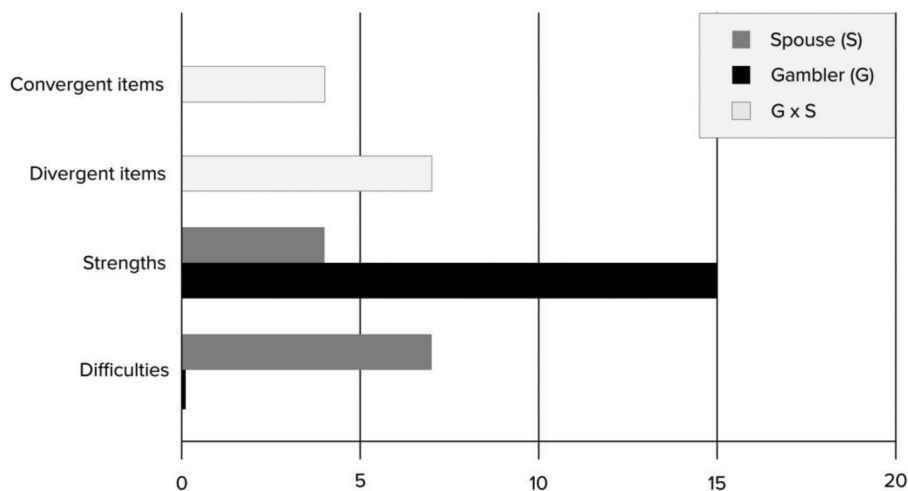


Figure 1. Main results of SCORE-15 questionnaire (number of items).

divergent themes” classification (see Narratives Extracted from the Qualitative Analysis of Questionnaires, p. 5).

Regarding the severity of the main problem that led the couple to therapy, the gambler’s score is 2 points lower than his spouse’s on the severity scale (6 vs. 8). Qualitatively speaking, the divergence remains as the gambler sees the problem in professional terms and the spouse in financial and social terms.

Summarizing, the gambler and his spouse diverge in their perception of family functioning and the gambler’s perspective is one of no difficulties. The spouse shows a rather more balanced perspective between strengths and difficulties, yet difficulties prevail.

Quality of Family Life (QOL). The gambler and his spouse identified 14 items in common and converged on 8 items (see Figure 2). Six of those corresponded to satisfaction domains and 2 to dissatisfaction domains.

Satisfaction domains are concentrated on children (items = 2), house space (items = 1), community space (items = 2), and safety in job (items = 1) themes; those of dissatisfaction are concentrated on financial aspects (items = 2). The gambler and his spouse diverge on the remaining 6 items marked by both. The divergence results from the gambler having marked these items as “satisfaction” and the spouse as “dissatisfaction.” These items concentrate on the themes: family (items = 3), financial aspects (items = 2), and domestic responsibilities (items = 1) (see Narratives Extracted from the Qualitative Analysis of Questionnaires, p. 5).

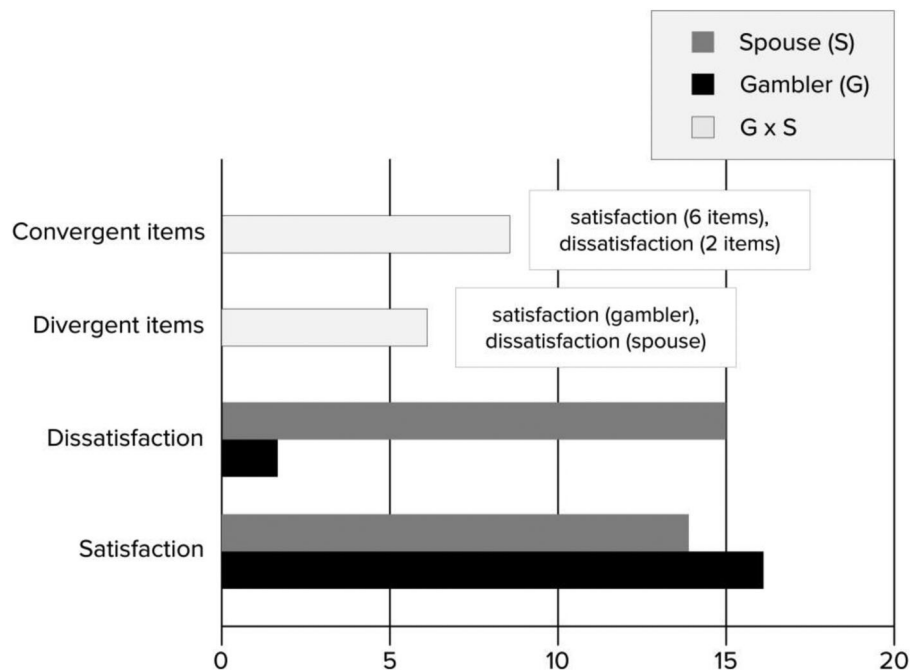


Figure 2. Main results of QOL questionnaire (number of items).

Regarding the items exclusively marked by the gambler (items = 4) or by the spouse (items = 14), we find that the gambler's choices correspond solely to satisfaction domains and concentrate on housing and space (items = 2), friends (items = 1), and media and community (items = 1) themes. Regarding the spouse's choices, 9 out of 14 items correspond to satisfaction domains: media and community (items = 4), time (items = 4), and education (items = 1) themes; 5 out of 14 items are dissatisfaction domains and concentrate on media and community ($n = 2$), health (items = 2) and financial (items = 1) themes (see Narratives Extracted from the Qualitative Analysis of Questionnaires, p. 5).

To sum up, the gambler's and spouse's perspectives diverge, especially regarding domains of dissatisfaction with family life, which are essentially pinpointed by the spouse. The spouse's perspective has a better balance between satisfaction and dissatisfaction with life whereas the gambler mostly tends to select satisfaction indicators.

Marital Adjustment (DAS). The gambler and spouse had 5 convergent common items (with extreme scores), expressing marital agreement (see Figure 3a) on the following themes: time (items = 2), friends (items = 1), attitude towards life (items = 1) and religion (items = 1). In addition to the common items marked, the gambler has 8 more items related to marital agreement and the spouse has 1 more item, but related to an area of marital disagreement. The themes related to marital agreement domains marked solely by the gambler are: attitude towards life (items = 4), intimacy (items = 2), recreational matters (items = 1) and family (items = 1). Household chores is the theme in the above-mentioned marital disagreement domain (items = 1), endorsed by the spouse (see Narratives Extracted from the Qualitative Analysis of Questionnaires, p. 5).

In brief, both the gambler and his spouse have a positive perspective regarding marital status. The gambler's results are more positive since he only points out marital agreement indicators. The spouse is rather more circumspect regarding the number of agreement indicators and also adds a disagreement indicator.

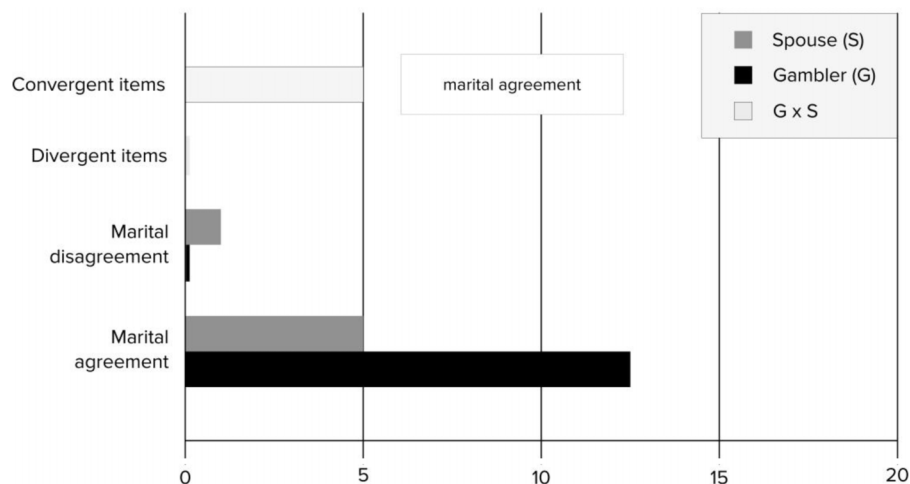


Figure 3a. Main results of DAS questionnaire (number of items).

The second set of items was analyzed using a different method. That is, while the analysis of the first set of DAS items used only extreme scores, the second set of items used all the scores (extreme and non-extreme scores) (see Data Collection and Data Analysis Procedures). There are 4 convergent items between the gambler's and spouse's answers on the following themes: intimacy (items = 2), assessment of the marriage (items = 1), and marital conflict (items = 1) (see Figure 3b). Eight of the 9 divergent items are given a more positive evaluation by the gambler and concentrate on the themes: assessment of the marriage (items = 3), intimacy (items = 3), sharing (items = 1), and marital conflict (items = 1). One of the 9 divergent items is given a more positive evaluation by the spouse (marital conflict) (see Narratives Extracted from the Qualitative Analysis of Questionnaires, p. 5).

To sum up, the gambler has a more positive perspective on the marriage, and this divergence of perceptions is perfectly summed up by the item "our relationship is..." on which the gambler answers "very happy" and the spouse answers "a little unhappy."

Congruence Scale (CS). Five items were marked with extreme scores both by the gambler and spouse (i.e., pertaining to themes of reaction to conflict, acceptance of the past, social tension, self-confidence), all in the same direction (convergent perspective). In addition, the spouse marked a further 8 items (i.e., pertaining to themes of guilt, inner conflict, and God) and the gambler marked 1 extra item (resources to solve problems). All items marked by both partners show a congruent position, although this is more evident for the spouse (see Narratives Extracted from the Qualitative Analysis of Questionnaires, p.5; Figure 4).

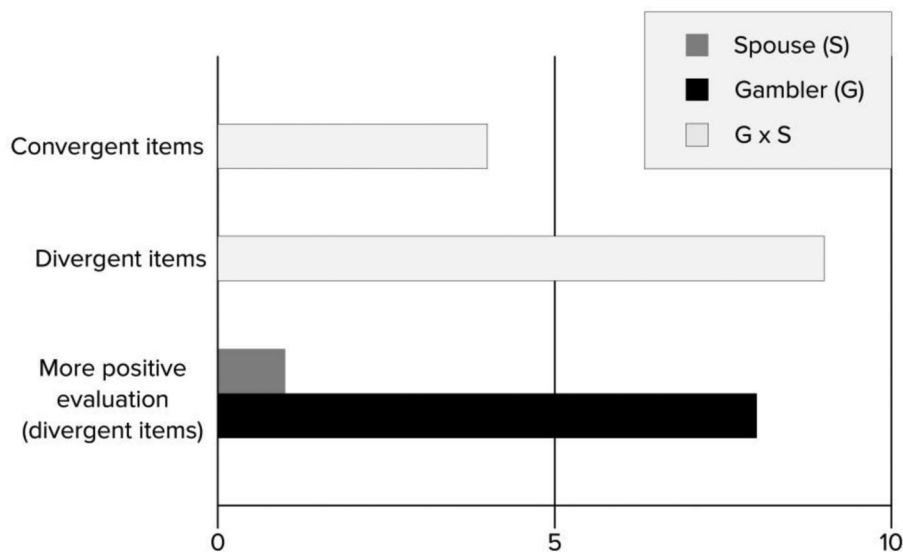


Figure 3b. Main results of DAS questionnaire utilizing the second set of items (number of items).

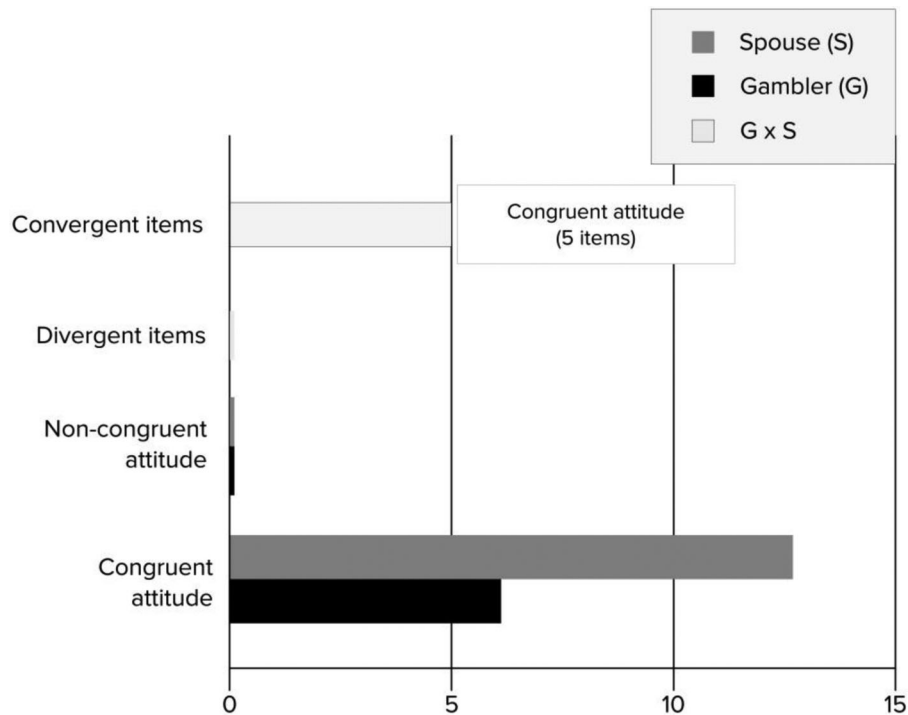


Figure 4. Main results of CS questionnaire (number of items).

Brief Symptom Inventory (BSI). The gambler marked 1 item and the spouse marked 12 items (with extreme scores). Nervousness and inner stress are experienced by both partners, yet the spouse indicates other emotions like anxiety, depression, and disbelief in others (see Narratives Extracted from the Qualitative Analysis of Questionnaires, p. 5; Figure 5).

Narratives Extracted from the Couples Therapy Narrative Analysis. This analysis uses pre-established categories based on the literature (“family difficulties,” “family strengths,” “marital difficulties,” “marital strengths,” “psychopathological symptoms,”

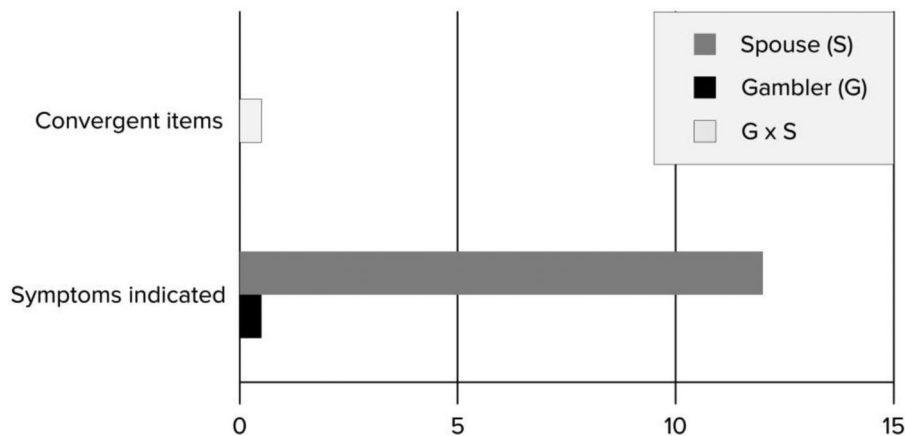


Figure 5. Main results of BSI questionnaire (number of items).

and “financial difficulties”), while remaining completely open and flexible. Concerning the themes emerging in the narratives analyzed (see Appendix B), some categories were added (“family stress,” “gambling-related risk factors”), others were eliminated (“family strengths,” “family difficulties”) and others were grouped under a broader category (“psychopathological symptoms”) and financial difficulties were placed with other themes under the category “difficulties felt in the individual domain”).

Using the words of each member of the couple and based on the analysis performed (see Couples Therapy Narrative Analysis), the following narratives can be presented.

Gambler	Spouse
<i>There is nothing in my family life that would lead me into gambling; it's gambling that has affected my family structure (family stress). I think we have a very good relationship (positive perception of spouse or marital relationship). It is true that she runs away a bit; but she runs and I go after her and try to catch her [laughs] (sexual intimacy difficulties). In our spare time, we go out for a coffee or meet with friends and if by any chance we do not meet anyone we stay on our own. Even when we do not meet anyone we have fun (leisure time/friendship satisfaction). I don't open up much, or talk about issues... I am not very extroverted and I think she would like me to be a little different because she talks a lot [laughs] and I only talk when I have to (emotion sharing and communication difficulties). I work around 12 hours a day and I am never on time to pick up the children from school (difficulty sharing daily household chores). It is true that I tried to hide my problem all these years, did not show the truth, I covered everything up (gambler's attempts to conceal gambling from spouse), but this climate of distrust was no help at all... she is right about some issues but, in my opinion, trust either exists or it doesn't, and it's hard to cope with this situation (importance of distrust in marriage).</i>	<i>My son weighed 3 kilograms at birth and all his muscles were paralysed, I had to set up an intensive care unit at home (family stress). Socially, we have fun together and have a lot of friends (leisure time/friendship satisfaction). He is distant, closed up in himself, doesn't talk, it bothers me that he doesn't remember things... Memories are only for me (emotion sharing and communication difficulties). After this problem I'm not as loving any more, there has been a physical, intimate, and sexual distancing (sexual intimacy difficulties). I would like him to be more of a presence, to keep up with details of everyday life, so that I am not the only one to take care of everything... hmm... like replacing a light bulb (difficulty sharing daily household chores). I am not saying that he is mean but rather selfish (negative perception of spouse or marital relationship). I've given up expecting him to change because I have seen the worst. I do not ask for much, I just need for him to stop gambling as I'm used to everything else (conformism). I want to keep this relationship... he is a great person; everybody likes him (positive perception of spouse or marital relationship). But I need to believe and I have yet to fully trust him (importance of distrust in marriage) because when I'm around I don't see anything special, something that would justify the problem. It's worse if I'm not there. Often he would go without me knowing (gambler's attempts to conceal gambling from spouse). Sometimes too many thoughts came into my head, even killing him... I feel angry (anger/ rage/ lack of empathy).</i>

Couples Therapy Narrative Analysis

The most common areas in the couple's narratives were: "marital difficulties" (41.67%),¹ "individual sphere difficulties" (25.69%) and "marital strengths" (18.75%), thus revealing a marital discourse with a notable deficit (see Figure 6). The spouse's narrative contributed 23.62% more RUs to the content analysis than did the gambler² and emphasizes the areas "family stress" (66.67%),³ "marital difficulties" (85.00%) and "risk factors for gambling" (54.55%) and, in particular, the themes of "emotion sharing and communication difficulties" (85.00%), "difficulties sharing daily household chores" (90.00%), "sexual intimacy difficulties" (80.00%), "importance of distrust in marriage" (87.50%), and "family challenges" (75.00%). The gambler's narrative emphasizes the areas of "marital strengths" (55.56%), "individual sphere difficulties" (62.16%), and specifically the themes of "leisure time/friendship satisfaction" (63.64%), "positive perception of spouse or marital relationship" (80.00%) and "consequences of gambling on gambler's professional life" (71.43%). Themes like "conformism," "negative perception of spouse or marital relationship," "anger/rage/lack of empathy," and "available money" were emphasized only in the spouse's narrative, whereas issues like "self-perception," "irresponsibility/failing," "gambler's memory problems," and "stress at work" were emphasized only in the gambler's narrative.

To sum up, the gambler has a more positive perspective on family and marriage, and sees more marital strengths and fewer marital or family problems than does the spouse. In terms of problems, the gambler is not so keen on stating them: "[T]here is nothing in my family life that could lead me into gambling... maybe conflicts," "she runs away and I try to catch her (laughs)." On the other hand, the gambler has a more negative view of individual aspects. It looks as if, for the gambler, the problems simply involve himself, whereas the spouse is the one that reveals relationship problems (family and marital) and sees them as being particularly important.

Discussion

The narratives obtained individually and interactively show that each partner had intersecting narratives regarding family strengths, marital strengths, savings level, congruent position, and psychopathological symptoms. Within this common ground, however, the gambler emphasizes issues like good family and marriage functioning and difficulties with individual functioning (e.g., memory problems, consequences of gambling on employment). Meanwhile, the spouse tends to focus on the family,

¹The percentages presented resulted from a percentage calculation. For example, in the present case, *marital difficulties* % = n of RUs grouped in the theme "marital difficulties" (60)/total n of RUs for both partners (144)*100

²Spouse's frequency of RUs = 89 ($89*100/144 = 61.81\%$); Gamblers's frequency of RUs = 55 ($55*100/144 = 38.19\%$); $61.81\%-38.19\% = 23.62\%$

³The percentages presented resulted from a percentage calculation. For example: Family stress's frequency of RUs = 9 (3 provided by the gambler and 6 by the spouse); gambler's percentage = $3*100/9 = 33.33$; spouse's percentage = $6*100/9 = 66.67\%$

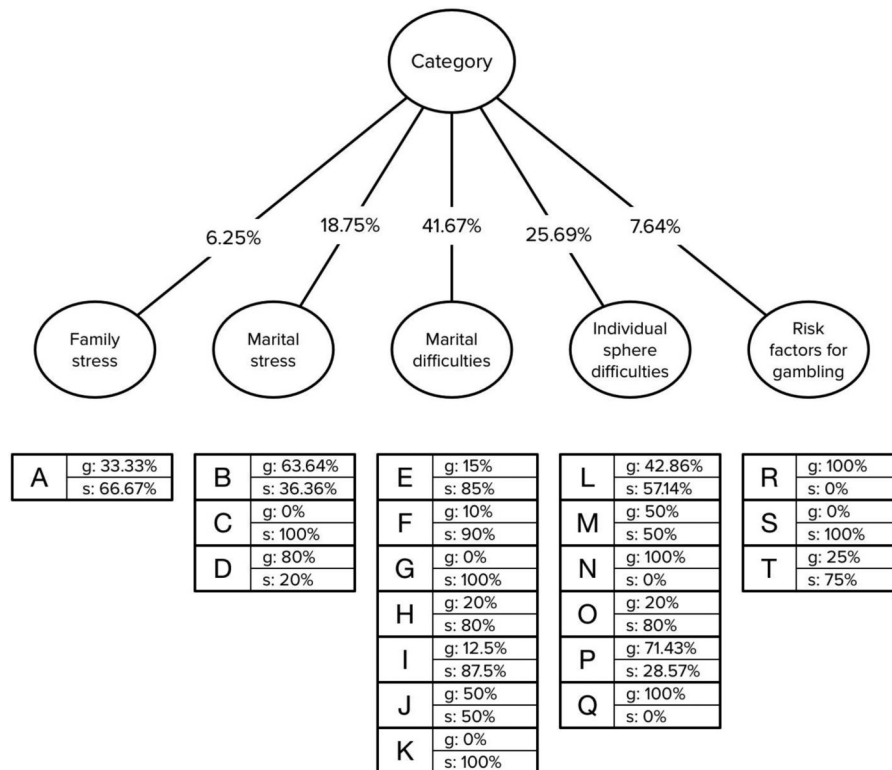


Figure 6. Content analysis of theme codes A through T (see Appendix B); g = gambler; s = spouse.

marital and financial aspects (in addition to savings levels) and psychopathological symptoms, yet showing a rather more congruent position (a better relation with the context, others, and herself).

Gambling risk factors were more evident in the spouse's narrative than in the gambler's, as he seems basically to emphasize stress at work and downplay family challenges and availability of cash. This point makes sense in the framework of these results, for two reasons: (1) it is still the spouse who more clearly focuses on problematic aspects, in particular, risk factors for the gambling problem, and (2) the gambler almost completely restricts the problematic narratives to non-family contexts, in particular, his job (see Figure 7).

Despite both the gambler's and spouse's recognition of family and marital problems and acknowledgement of individual problems (e.g., gambling risk factors, psychopathological symptoms, financial difficulties), the gambler minimizes them or states them with little apparent distress ("she runs away and I try to catch her" [laughs] — gambler). These results are in accordance with the findings reported by Ferland et al. (2008) that spouses see the consequences of gambling as more serious. Despite this quantitative difference, the couple's narratives are quite deficit-focused, and include marriage problems and individual problems.

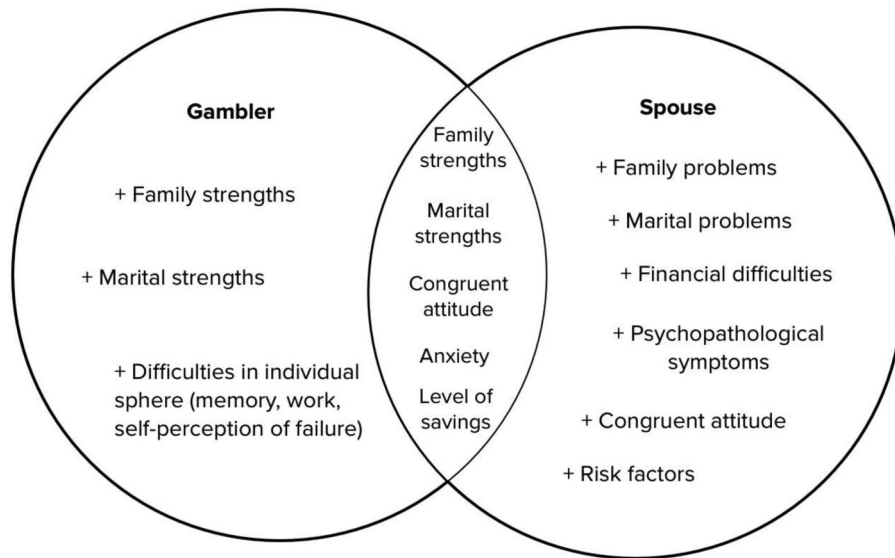


Figure 7. Summary scheme.

In fact, couples with a pathological gambler partner face a set of problems also found in our case study: emotional expressiveness (“I keep asking if everything is ok, he says yes, but it is not...” — spouse) (Lorenz & Yaffee, 1986); communication (“I only talk when I have to, he thinks I talk too much and even so he does not listen to me” — spouse) (Ferland et al., 2008; Fernández, Rincón, & Álvarez, 2002; Lorenz & Shuttlesworth, 1983); emotional intimacy (“with our problem I’ve stopped being so loving” — spouse) (Lorenz & Yaffee, 1986), sexual intimacy (“we are physically, intimately, sexually distant” — spouse) (Dowling, Smith, & Thomas, 2009; Fernández et al., 2002; Lorenz & Yaffee, 1986); lying and deceiving (“I am sorry if I distrust you but you lied to me and deceived me” — spouse) (Dickson-Swift et al., 2005); anger and resentment (“I do not forgive him because he always gambles when it is hard on everyone” — spouse) (Fernández et al., 2002; Lorenz & Yaffee, 1986); lack of trust (“this atmosphere of distrust has no benefits” — gambler); feelings of guilt (“I feel the consequences of irresponsibility; had I been more responsible we would not have come to this” — gambler); isolation (“he is distant, inhibited, does not talk” — spouse); financial problems (“I missed speech therapy because we could not afford it...” — spouse) (Dickson-Swift et al., 2005; Lorenz & Yaffee, 1986); and gambler’s dwindling responsibility/spouse’s increasing responsibility (“What I would like? That he would be around keeping up with details of everyday life, not to have to take care of everything myself like replacing a light bulb” — spouse) (Fernández et al., 2002).

Regarding this last topic, several studies (Lorenz & Shuttlesworth, 1983; Patford, 2009) show that spouses/partners of gamblers tend to take on extra responsibilities caused by the gambler’s absences and neglect of the family. In this study, that finding is much in evidence in the spouse’s narrative, which mentions dissatisfaction on themes such as household chores distribution and parenting (“[m]ost couples would

not put up with the lack of help on household chores and taking care of the children...”). According to Lorenz and Yaffee (1989), parenting is an area of disagreement in these couples, finding that half the spouses disagree with those gamblers who consider enough time was being spent with their children. In our study, the gambler does not mention that he spends enough time with his children, and accepts that employment issues cause his difficulties in doing so (“I never pick the children up from school on time”); yet, child care prevails as an area of dissatisfaction for the spouse. Physical symptoms on the part of the spouse are both evident in this study and reported in the literature (Lorenz & Shuttlesworth, 1983; Patford, 2009). (Examples of these symptoms include depression and anxiety: “[on] Monday I felt bad, blood pressure, because I feel anxious, now it is physical!” – spouse). The gambler is also described in the literature as having symptoms of depression and anxiety and various family and marital problems, among other difficulties (McComb et al., 2009). In general, it is hard to determine through the literature whether these issues are more evident in the spouse, as shown in our study.

It was also found that the spouse emphasizes relationship difficulties (family and marital) and the gambler emphasizes individual problems. This result is consistent with our previous study (Cunha & Relvas, 2014b) in which pathological gamblers do not perceive family functioning, quality of life (family), and marital adjustment as being more problematic than the control group do, whereas psychopathological symptoms and financial aspects were found to be domains of greater difficulty. The partners also differ regarding how they assign significance to their problems. For example, when defining the main family problem they are experiencing, the spouse mentions financial and social aspects while the gambler focuses on job problems, although both agree they are in therapy because of the gambling problem. Another example is the significance assigned to the gambler’s memory failures, which he sees as memory problems (“I would like to have a better memory but I just cannot...”) arising from a personal disability and his spouse sees as caused by emotional/life experience sharing difficulties (“but you do not remember that António was born disabled (...) memories only belong to me”). Even when they agree, for example regarding financial aspects, differences in the couple’s perspectives are still evident; specifically, the spouse’s narrative takes a broader view at this level, such considering other financial difficulties in addition to the level of savings. This result is in accordance with the findings of Lorenz and Yaffee (1989) who found the non-gambling spouse to be more aware of the family/marital situation in terms of finance, and not simply confined to savings difficulties.

Although the spouse feels “a little unhappy” about her family and marital life, the marriage is to be kept (“I want to keep this relationship; he is a great person and everybody likes him” — spouse) partly because of the common aspects presented in Figure 7, and partly because of conformism (adaptation to spouse’s less likeable characteristics), as shown by the spouse and to the gambler’s positive perception of married life, nurtured by the couple’s social relations with friends (“[s]ome of our friends even admire us as a couple”).

A possible explanation of these results could be presented through three theorized effects—idealization/guilt relief effect, denial effect, and disillusion/retaliation effect. The gambler experiences guilt and remorse (Lee, 2002b), and feels responsible for the pathological gambling and so could be less able to place the emphasis on it in family and marital aspects, finding it easier to talk about his individual problems. It is as if his own guilt does not allow him to recognize any “flaws” in his family, whose suffering is something he has caused. This inability is called the “idealization/guilt relief effect” (“[m]y family is wonderful... I am the problem”). In addition the gambler considers himself “cured” and this may contribute to a denial of the difficulties-denial effect. Denial is referred in literature as one of the most significant barriers to change (Evans & Delfabbro, 2005; Gainsbury, Hing, & Suhonen, 2014). On the other hand, the spouse can feel like a “victim” caused by the gambler’s irresponsibility, thus evoking, or even exaggerating, family and marital difficulties more easily—itself an instance of the disillusion/retaliation effect. (“I and your children are like this because of you. How can I feel good being married to someone who puts gambling ahead of his family’s needs?”) In fact, a sense of anger and resentment are frequent in pathological gamblers’ spouses (Hodgins, Shead, & Makarchuk, 2007), probably reflecting, among other things, that last effect of disillusionment/retaliation.

From this study, some clinical implications can be taken for couples therapy, such as: (1) maintain neutrality, that is, listen, understand and respect both sides and confront, challenge, or praise both partners equally; (2) create a secure, non-defensive context making it possible to collect divergent interpretations relative to the problem and possible solutions; (3) work on the definition of truly common therapeutic objectives. The knowledge of the three effects could also contribute to therapists developing an empathic attitude with both gambler and spouse, facilitating their achievement of (1), (2) and (3). The intersecting narratives (e.g., family strengths, marital strengths, savings level), identified in this study, could also help therapists to work on (3).

The findings of this study should also take into consideration the specific context of the case: an involuntary client, the gambler, who goes to therapy to fulfil professional obligations. This fact can justify the gambler’s emphasis on professional issues at the expense of more relational aspects. Maybe couples motivated by other reasons to enter therapy, or couples in different stages of change, might yield different results, or possibly both results. For example, there may be more convergence on how the two partners view the degree of marital distress, and there may be less emphasis on employment stress. In fact, one of the limitations of case studies frequently pointed out in the literature is their provision of only scant bases for generalization (Yin, 2014). Thus, with this study alone, it is not possible understand if these results were mainly dependent of the condition of being a couple with a gambling problem or if they were also explained by other specific conditions inside this general one (e.g., being an involuntary client). Probably, this last hypothesis is more reasonable. Despite these limitations, the narratives obtained individually and interactively (via

our methodological triangulation) were consistent/convergent, both underlying the validity of the results (Erzberger & Prein, 1997) and enhancing the credibility of the interpretations made (Denzin, 1989).

Finally, we shall consider the innovative method used in this study: qualitative analysis of self-report questionnaires. The results obtained with this method were consistent with the results obtained in the session's content analysis. This consistency is a favourable indicator of the method's concurrent validity. This method may be time-consuming, but certain advantages can be highlighted, such as the collection of a more detailed information set, one that deepens and assigns meaning to results obtained via quantitative analysis. In fact, sometimes after the quantitative analysis of a battery of questionnaires, some doubts prevail which could be answered qualitatively. This method could therefore be useful to obtain deeper answers, without investing more time on new data collection (e.g., interviews). This analysis doesn't replace more "classic" qualitative methods, but promotes a simple and time-saving method for clarifying and supplementing some quantitative data. It could also be an interesting and useful method for larger samples. Quantification is an advantage for data organization, since it allows for statistical processing.

Conclusion

The gambler has a more positive perspective on gambling-related problems than the spouse, especially regarding marital and family aspects. With respect to non-relational aspects—financial and professional—the gambler's viewpoint is more marked by difficulties. To explain these results we put forward three effects: denial, idealization/guilt relief, and disappointment/retaliation.

This data cannot necessarily be extrapolated to a target population—couples with a pathological gambler member—given methodological limitations with case studies. However, this research benefits from triangulation of data sources (i.e., gambler and spouse) and data collection methods (i.e., individually and interactively), thus enhancing its internal validity. Furthermore, we would also like to draw attention here to the originality of the data collection and analysis methods used in this study (qualitative analysis of self-report questionnaires) as being of possible methodological interest to readers. These results gave an interesting set of indicators on this couple's family, marital and individual functioning, and, in particular, their differences in viewpoints, something that is hardly mentioned in the pathological gambling literature. Hence, some warnings for clinical intervention with such couples can be taken from the study. It would be interesting in the future to replicate this method, also using quantitative methods and with a larger sample, to determine whether these differing viewpoints are repeated. At this level, the study of gender differences (Ibáñez, Blanco, Moreryra, & Sáiz-Ruiz, 2003) may be worthwhile, since this would let us analyze whether, for instance, the spouses of gamblers emphasize marital difficulties or if this is an especially female (wife's) characteristic.

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Appendix A
Brief presentation of questionnaires

Questionnaires	Dimensions	Example Items	Answer Scale
SCORE-15	Family strengths Family communication Family difficulties	I feel that it is risky to disagree in our family (item 4) In my family, we talk with each other about things that are of interest to us (item 1) Your marriage (item 2) Your level of income (item 29)	1 (describes us very well) to 5 (describes us very badly)
Quality of Life	Family, friends and health Time Media and community Financial wellbeing Mutual consensus Mutual satisfaction Affectional expression Mutual cohesion Spiritual/Universal Intra/Interpersonal		1 (dissatisfied) to 5 (extremely satisfied)
DAS		Manage the family income (item 1) Laugh together? (item 26)	0 (always disagree) to 5 (always agree) 0 (never) to 5 (more than once per day)
CS		I blame myself when things go wrong (item 6) I trust in the goodness of God or the Universe (item 15)	1 (extremely agree) to 7 (extremely disagree)
BSI	Somatization Obsessions-compulsions Interpersonal sensitivity Depression Anxiety Hostility Phobic anxiety Paranoid ideation Psychoticism General Symptom Index (GSI) Positive Symptom Total (PST) Positive Symptom Index (PSI)	Feeling sad (item 17) Difficulty falling asleep (item 25)	0 (not at all) to 4 (extremely)

Appendix B

Themes for analysis

Category (number of RUs)	Code	Theme (number of RUs)	Definition	RUs examples
Family stress (9)	A	Family stress (g = 3, s = 6)	Features described as stressful and inducing nuclear family imbalance	g: "gambling affected the family structure (...)" s: "Our family are our children. Parents have passed away, I am an only daughter and his brothers live abroad (...)" s: "my son weighed 3 kg and all his muscles were paralysed (...) I practically set up an intensive care unit at home (...)" g: "we go out for a coffee or to meet friends. If by any chance we do not meet anyone we stay on our own (...)" even when we don't meet anyone we have fun (...)" s: "we have fun together socially (...)" s: "we have a lot of friends (...)" s: "I have given up the idea that he would change because I've seen the worst... I don't ask much... I just need for him to stop gambling... I am used to everything else (...)" s: "I'm used to being alone and that doesn't bother me anymore (...)" s: "it's been a few years since I have adapted (...)" g: "I think we have a very good relationship (...)" s: "I want to stay in this relationship... he's a great person and everybody likes him (...)"
Marital strengths (27)	B	Leisure time/ friendship satisfaction (11: g = 7, s = 4)	Satisfactory leisure activities allowing for marital strengthening and friendship support	
	C	Conformism (6: g = 0, s = 6)	Adaptation to spouse's least liked aspects	
	D	Positive perception of spouse or marital relationship (10: g = 8, s = 2)	Identification of spouse's positive qualities and/or the marital relationship	

Appendix B. Continued.

Category (number of RUs)	Code	Theme (number of RUs)	Definition	RUs examples
Marital difficulties (60)	E	Emotion sharing and communication difficulties (20: g = 3, s = 17)	Reference to incompatibilities in verbal communication and expression and emotion sharing	g: "I don't open up a lot, talking about problems... I don't talk very much (...)" g: "I think she would like me to be a bit different because she talks a lot (laughs)... I only talk when necessary (...)" s: "moves away, shuts himself down, doesn't talk (...)" s: "it bothers me that he doesn't remember things... Memories only belong to me (...)"
	F	Difficulties sharing daily household chores (10: g = 1, s = 9)	Unbalanced perception of how everyday family household chores are divided	g: "I never pick the children up from school on time" s: "I would like him to be more 'here' keeping up with everyday details so that I am not the only one taking care of everything like replacing a light bulb (...)"
	G	Negative perception of spouse or marital relationship (3: g = 0, s = 3)	Identification of negative qualities of spouse and/or marital relationship	s: "I'm not saying that he is mean, but he's rather selfish (...)"
	H	Sexual intimacy difficulties (5: g = 1, s = 4)	Couple's sexual distancing	g: "she runs away and I try to catch her (laughs) (...)" s: "with our problem I've stopped being so loving (...)"
I	I	Importance of distrust in marriage (8: g = 1, s = 7)	Reference to lack of trust as a negative aspect, damaging to the marriage	g: "I feel nervous, impatient, throughout that year I felt permanently stressed (...)" s: "I feel bad... blood pressure... because I feel this anxiety ...it is physical!"
	J	Gambler's attempts to conceal gambling from spouse (6: g = 3, s = 3)	Reference to gambler's behaviours designed to conceal gambling and/or its impact	g: "I tried to hide it all these years, I wasn't showing things as they were, I hid things from her (...)" s: "when I was around I didn't see anything in particular...to explain the problem. When I didn't go that was when it was worse. He often went without me knowing (...)"

Appendix B. Continued.

Category (number of RUs)	Code	Theme (number of RUs)	Definition	RUs examples
Individual sphere difficulties (37)	K	Anger / rage/ lack of empathy (8: g = 0, s = 8)	Expression of negative feelings like anger, rage, sometimes due to failure to understand the problem	s: "I thought of everything, even killing him... I was furious (...)" s: "I have to see why... why does he go back when he keeps losing, how is it that he can't say no!?" g: "pressure from the wife (for treatment) helped to get us here (...)"
	L	Pressure to control/ treat gambling (7: g = 3, s = 4)	Reinforce the urgent need to control gambling by others (friends, company, spouse)	
	M	Financial difficulties (8: g = 4, s = 4)	Unbalanced financial situation of the couple (debts)	g: "these debts are short-term... it'll be easy to clear them quickly (...)" s: "his compensation payment would be enough for the house...but, not with the debts (...)" g: "I feel something of a burden of responsibility...if I'd been more responsible we wouldn't be in this situation"
	N	Self-perception of irresponsibility/ failing (3: g = 3, s = 0)	Gambler feels he has failed in his responsibilities/decisions	
	O	Anxiety/stress (5: g = 1, s = 4)	Reference to emotional and physical signs of anxiety/ stress	g: "I feel nervous, impatient, I've been under stress all this year (...)" s: "I feel ill... blood pressure...because I'm so anxious ...now it's physical!" g: "triggered with respect to the company (...) I was advised (by the company) to do something about it (...)" s: "it is very important to be here to save his job" (...)
	P	Consequences of gambling on gambler's professional life (7: g = 5, s = 2)	Implications of gambling on the gamblers employment stability (keeping his job)	
	Q	Gambler's memory problems (7: g = 7, s = 0)	The gambler cannot remember some events in his past	g: "cannot remember the birth... some details (...) I think that I just keep erasing older memories with no regard to their importance (...)"

Appendix B. Continued.

Category (number of RUs)	Code	Theme (number of RUs)	Definition	RUs examples
Risk factors for gambling (11)	R	Stress at work (4: g = 4, s = 0)	Identification of stress at work/ overwork as a trigger for gambling	g: “something that could have led me into gambling could be stress at work (...)
	S	Available money (3: g = 0, s = 3)	Identification of substantial amounts of money availability as a trigger for gambling	s: “he has a lot of ready cash... it is a risk”
	T	Family challenges (4: g = 1, s = 3)	Identification of problems in the family of origin as a trigger for gambling	g: “there is nothing in my family life that could lead me into gambling (...) maybe conflicts (...)” s: “I think it’s important to say that we have a disabled son... this is another stress factor (...)” (trigger for gambling)

Gambling and the Couple: Comparing Gamblers' and Spouses' Views on Family, Marital and Individual Levels

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Abstract

This study compares the perspectives of 19 pathological gamblers with those of 13 pathological gamblers' spouses ($N = 31$) with regard to family (i.e., family functioning and quality of life), marital variables (i.e., dyadic adjustment and marital satisfaction) and individual variables (i.e., congruence, differentiation of the self and psychopathological symptomatology). Regarding individual functioning, the gamblers and spouses presented with psychological symptomatology, as both had values that are typical for emotionally disturbed populations. Moreover, the gamblers showed additional difficulties with regard to congruence. The results show that the gamblers' perspectives on family and marital life were less affected by difficulties, yet this difference was most pronounced in marital life. The primary limitations of the current study are regarding the independence of the subsamples (i.e., the participants were married or had marital life partners but were not couples) and the small sample size. Nevertheless, the current results call into question the 'truths' that are taken for granted by previous literature (e.g., gambler's perceptions of marital problems) and highlight the challenges that couples' therapists face regarding perspective differences in couples experiencing a gambling problem.

Keywords: Gamblers, Spouses, Families, Couples, Individuals

Résumé

Cette étude compare le point de vue de 19 joueurs ou joueuses pathologiques avec celui de 13 conjoints ou conjointes de joueurs ou joueuses pathologiques ($N = 31$) sur leur vie de famille (fonctionnement familial et qualité de la vie en famille) et sur différentes variables conjugales (ajustements liés à la vie à deux et satisfaction conjugale) et individuelles (congruence et différenciation de l'identité et symptômes psychopathologiques). Sur le plan du fonctionnement individuel, les joueurs ou

joueuses et les conjoints ou conjointes présentaient dans les deux cas des symptômes psychologiques, chaque groupe possédant des valeurs typiquement associées aux personnes souffrant de troubles affectifs. Les joueurs ou joueuses présentaient en plus des difficultés supplémentaires relativement à la congruence. Les résultats indiquent que le point de vue des joueurs ou joueuses sur leur vie conjugale et familiale était moins influencé par leurs difficultés, cette différence étant par ailleurs plus marquée en ce qui a trait à la vie conjugale. Les principales limites de l'étude sont le caractère indépendant de chaque sous-groupe (les participants étaient des personnes mariées ou vivant en union conjugale, mais ne constituaient pas des couples) et la petite taille de l'échantillon. Néanmoins, les résultats obtenus appellent à une remise en question des « certitudes » généralement tenues pour acquises dans la littérature (p. ex., sur la perception qu'ont les joueurs ou joueuses de leurs problèmes conjugaux) et mettent en lumière les problèmes que peuvent rencontrer les thérapeutes de couple concernant les différences de perceptions au sein des couples dont l'un des membres souffre d'un problème de jeu.

Introduction

Pathological gambling (DSM IV-TR) (American Psychiatric Association, 2000) or gambling disorder (DSM V) (American Psychiatric Association, 2013) is considered an addiction characterized by an individual's completely subordinate relationship with gambling (Cunha & Relvas, 2014a). Despite the negative impacts that this relationship has on individual (e.g., on mental and physical health) (McComb, Lee, & Sprenkle, 2009), family (e.g., negligence towards family and marital needs) (McComb et al., 2009) and social levels (e.g., isolation) (Reith, 2006), pathological gambling is often referred to as a hidden addiction (Ladouceur, 2004; Phillips, 2005). This designation is justified given that pathological gambling has no physical signs of abuse (e.g., needle marks, dilated pupils, or others) (McComb et al., 2009) and the gambler makes an effort to hide any evidence and the extent of the problem from others. This mechanism is also self-deceiving, as it allows gamblers to ignore the worsening of their problem (Downs & Woolrych, 2010).

There may be a reality associated with pathological gambling that is constructed by the gamblers (for themselves and others), a reality that is different and less negative than that experienced by their relatives. In fact, an exploratory study conducted by Ferland et al. (2008) showed that gamblers' spouses perceived the consequences of the gambling problem in a more severe manner than did the gamblers. Nevertheless, literature focusing on this issue is scarce and does not provide consistent results (Cunha, Sotero, & Relvas, in press²). In Portugal, a large project (in which this study was included) is empirically evaluating the Integrative Systemic Model of Pathological Gambling (ISMPG) (Cunha & Relvas, 2014a). A new matrix of results is beginning to support the proposal that gamblers have a less severe perspective on their gambling problem than do their spouses. Specifically, a quantitative study ($N = 32$ gamblers + 52 control

participants) found that pathological gamblers did not acknowledge that their family realities in global terms differed from that of the general population (Cunha & Relvas, 2014b). This result led the authors to conduct a case study (Cunha et al., in press2) which determined that a gambler had a more positive perspective than did his spouse regarding the problems associated with gambling, particularly those related to marital and family issues. The authors suggested that there may be three explanatory effects for these results, as follows: denial, idealization/guilt relief, and disappointment/retaliation (Cunha et al., in press2). When gamblers are married, their spouses are the first members of the family to feel the impact of the problem (Solano Montero & Megías-Lizancos, 2011). Given the apparent differences in perspectives between spouses and gamblers, it is important to compare the views of each member of this dyad in an encompassing manner.

Therefore, this study aims to quantitatively compare pathological gamblers and pathological gamblers' spouses who are not from the same couples with regard to family variables (i.e., family functioning and quality of life), marital variables (i.e., marital satisfaction and adjustment) and individual variables (i.e., congruence, differentiation of the self and psychopathological symptomatology).

Method

Participants

The sample consisted of 32 participants, of whom 19 were pathological gamblers (PG group) who were married or who had a life partner, and 13 were spouses/partners of pathological gamblers (GS group). Initially, the sample included an additional three subjects; however, these subjects fulfilled the criteria for both groups (PG and GS) and were thus eliminated. The PG group had an average length of time as part of a marriage/consensual union that was equal to 12.00 years ($SD = 12.67$), whereas the GS group had an average of 17.08 years ($SD = 12.67$). The difference between the groups was not statistically significant ($p > .05$, Mann-Whitney test). When the number of years in a marriage/consensual union was divided into 10-year bands, both groups were more likely to have participants in the 1–10 years of marriage/consensual union band (PG: $N = 11$, 57.89%; GS: $N = 6$, 46.15%). It is important to note that all of the participants were married or had a marital life partner but that couples were not present; that is, the PG and GS groups were independent samples. The PG group was primarily composed of male participants ($N = 16$, 84.21%) with an average age of 40.39 years ($SD = 10.70$). The majority of participants in this group had an upper secondary education ($N = 6$, 31.57%) or a bachelor's degree ($N = 5$, 26.32%) (United Nations Educational Scientific and Cultural Organization (UNESCO) Institute for Statistics, 2012), lived in urban areas ($N = 19$, 100%) (Statistics Portugal (INE), 2009), and had average socio-economic status ($N = 14$, 73.68%) (Simões, 1994). The GS group was composed of nine women (69.23%) and four men (30.77%) with an average age of 43.46 years ($SD = 10.41$). The majority of participants in this group had completed a lower secondary education ($N = 4$, 30.77%) or had a bachelor's degree ($N = 3$, 23.08%) (UNESCO

Institute for Statistics, 2012), lived in urban areas ($N = 13$, 100%) (Statistics Portugal (INE), 2009), and had average ($N = 3$, 23.08%) or low socio-economic status ($N = 3$, 23.08%) (Simões, 1994). The two groups had no statistically significant differences with regard to socio-demographic variables ($p > .05$), except for differences in sex ($p = .004$, Fisher's exact test). These differences were primarily because more females were in GS group than would be expected if these variables were independent (residual 2.0).

Procedure

Specialized entities in gambling (e.g., Gamblers Anonymous and Families Anonymous) were asked to advertise for participants in the current study among their members. The entities were provided with copies of the protocol, and the person in charge was asked to distribute these copies to anyone who was interested in participating. This advertising resulted in the recruitment of seven PG and eight GS subjects. In addition, online dissemination of the research protocol (via social networks and email) was utilized using the virtual equivalent of the snowball method of recruitment (Goodman, 1961). This online dissemination resulted in the recruitment of 12 PG and 5 GS subjects. In the PG group, there were no statistically significant differences between the two collection methods for any of the study variables ($p > .05$). In the GS group, there was one statistically significant difference with regard to Family Difficulties (SCORE-15), which had a lower score for the online participants ($U(17) = 0.29$, $p = .008$, $r = .07$). The following criteria were implemented for inclusion/exclusion in the current study: (1) being older than 18 years old; (2) having a diagnosis of pathological gambling; and (3) being married to or having a life partner who is a pathological gambler.

Ethical Issues

The subjects' participation request was framed by a set of preconditions (i.e., study objectives, respect for confidentiality and anonymity, voluntary participation, and provision of the contact details for the free specialized clinical support service at the authors' host institution), which were described in the cover page of the protocol. Participants did not sign an informed consent form to protect the voluntary, anonymous and confidential nature of the information being collected (American Psychological Association, 2010). The Foundation for Science and Technology (FCT), which is an external agency, both approved of the current study and sponsored the project.

Instruments

Questionnaire examining socio-demographic characteristics. To characterize the sample, a questionnaire examining socio-demographics (e.g., gender, marital status, nationality, residence, age, education and occupation) was administered that took into consideration the need to preserve the anonymity of the participants. It included

questions that permitted the operationalization of the third criterion for inclusion/exclusion in the sample.

Systemic Clinical Outcome and Routine Evaluation – 15 (SCORE-15) (Stratton, Bland, Janes, & Lask, 2010; Portuguese version by Vilaça, Silva, & Relvas, 2014). SCORE-15 is a self-report instrument that assesses family functioning. It consists of 15 items measuring three dimensions, which are Family Strengths, Family Communication and Family Difficulties, as well as five additional questions that relate to the family routine, the nature and impact of family problems and possible therapeutic needs. The participants evaluate whether each item describes their family according to a five-point Likert scale, in which 1 represents “describes us very well” and 5 represents “describes us very poorly”. A higher score corresponds to more problematic family functioning. SCORE-15 has good internal consistency both overall and dimensionally ($.82 < \alpha < .85$).

Quality of Life (QOL) (Olson & Barnes, 1982; Portuguese version by Cunha & Relvas, 2015). This instrument assesses the perception of the quality of one’s family life. It is a self-report questionnaire that consists of 20 items representing the following four dimensions: (1) Family, Friends, and Health, (2) Time, (3) Media and Community, and (4) Financial Well-Being. The participants respond to the items according to a five-point Likert scale, in which 1 represents “dissatisfied” and 5 represents “extremely satisfied”. A higher score corresponds to a better quality of life. This instrument has reasonable/good internal consistency regarding the total scale and all of its dimensions ($.72 < \alpha < .89$).

Dyadic Adjustment Scale (DAS) (Spanier, 1976; Portuguese version by Lourenço, 2006). The DAS assesses dyadic adjustment through 32 items that are grouped into the following four dimensions: Dyadic Consensus, Dyadic Satisfaction, Affectional Expression, and Dyadic Cohesion. The responses on a Likert scale ranged from 5 to 6 points for most items, whereas two items (items 29 and 30) had dichotomous response scales. Higher scores for the dimensional and total results correspond with better dyadic adjustment. Overall, this instrument has good internal consistency ($\alpha = .93$), and the subscales vary between .65 and .88.

Marital Satisfaction Assessment Scale (*Escala de Avaliação da Satisfação em Áreas Conjugais* [EASAVIC]) (Narciso & Costa, 1996). The Marital Satisfaction Assessment Scale is a self-report instrument consisting of 44 items that are distributed across two large dimensions, which consist of the following areas: (1) Love (i.e., Feelings and Expression of Feelings, Sexuality, Emotional Intimacy, Continuity of the Relationship, and Physical and Psychological Traits) and (2) Functioning (i.e., Functions, Free-time, Autonomy/Privacy, Communication and Conflicts, and Relationships outside of the Family). The participants evaluate their levels of satisfaction regarding various areas of marital life according to a Likert scale, in which 1 represents “not at all satisfied” and 6 represents “completely satisfied”. The internal consistency of this scale is very good (Love: $\alpha = .97$ and Functioning: $\alpha = .90$).

Differentiation of Self Inventory – Revised (DSI-R) (Skowron & Schmitt, 2003; Major, Rodríguez-González, Miranda, Rousselot, & Relvas, 2014). The DSI-R is a self-report inventory consisting of 46 items that assess the differentiation of the self in adults using a Likert scale, in which 1 represents “not true for me” and 6 represents “very true for me”. This instrument has the following four dimensions: Emotional Reactivity, Emotional Cut-Off, I-Position and Fusion with Others. A higher score corresponds to a greater differentiation of the self. The DSI-R has good internal consistency for the overall scale ($\alpha = .86$) and the subscales vary between .51 and .86.

Congruence Scale (CS) (Lee, 2002; Portuguese version by Cunha, Silva, Vilaça, Gonçalves, & Relvas, in press1). The CS is a self-report questionnaire for adults that consists of 16 items assessing congruence through the relationship with oneself, with others and with life. The 16 items are divided into the following two subscales: Spiritual/Universal and Intra/Interpersonal. Congruence is the central construct of the Congruence Couples Therapy for Pathological Gambling (CCT), which is an intervention model that has been adapted for couples with a pathological gambler element (Lee, 2009). The internal consistency of this scale and its subscales varies between reasonable and very good ($.75 < \alpha < .93$).

Psychopathological Symptom Inventory (BSI) (Derogatis & Spencer, 1982; Portuguese version by Canavarro, 1999). This instrument is a self-report inventory consisting of 53 items with responses provided on a Likert scale ranging from “never” (0) to “very often” (4). The items encompass the following nine dimensions: Somatization, Obsessions-Compulsions, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. This instrument also provides information regarding the following three global indices: the General Symptom Index (GSI), the Positive Symptom Total (PST) and the Positive Symptom Index (PSI), which summarily rates emotional disorders. The PSI provides the cut-off point after which individuals are (probabilistically) considered emotionally disturbed ($PSI \geq 1.70$). This instrument has internal consistency ratings that range from “reasonable” to “good” for all of its subscales and global indices ($.62 < \alpha < .80$).

South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987; Portuguese version by Lopes, 2009). Previous literature states that the SOGS is the most widely used tool for assessing pathological gambling (Shaffer, 1997). Composed of 20 items that are based on the DSM-III, this instrument evaluates the impact of gambling on various areas in a gambler’s life, including family, social, professional, financial and emotional aspects. A gambler is considered pathological when he or she scores 5 or more points out of 20. Higher scores indicate more severe gambling problems. The SOGS also provides data (via informational items that are not included in the calculation of the overall score) regarding the (1) type and frequency of the gambling behavior, (2) amounts involved in the betting process and (3) presence of family and friends with problems related to gambling. In the current study, this instrument had good internal consistency ($\alpha = .89$), which allowed for the operationalization of the second and third criteria for exclusion/inclusion in the sample (e.g., diagnosis of pathological gambling, being the spouse or partner of a pathological gambler,

respectively). Both the PG and GS subjects completed this questionnaire with regard to their own gambling behavior. Therefore, it was possible to eliminate the GS subjects from the sample who had scored within the pathological gambling range, combining conditions to integrate the two groups.

Results

Group Comparisons: Dependent Variables

Statistical analyses were conducted on the total scores and all of the dimensions for each instrument using nonparametric statistics; however, the dimensional results should be viewed and interpreted as merely indicative because of the small sample size. This issue is particularly relevant for the instruments with more dimensions (i.e., EASAVIC and BSI). Cohen's (1988, 1992) reference values were used to classify the effect sizes (r and V : 0.1 – small effect, .3 – medium effect, and .5 – large effect; η_p^2 : .01 – small effect, .06 – moderate effect, and .14 – large effect).

The results will be presented from the macro level to the micro level of the ISMPG, i.e., from the family context to the individual context. First, the quality of family life will be discussed (QOL) (Table 1). Both the PG and GS subjects had total and dimensional scores that were similar to the general population, except with regard to the Financial Well-Being and Family, Friends and Health dimensions. For these dimensions, the GS group had lower scores than the general population (if the range that resulted from the difference between the mean and standard deviation is considered) (Cunha & Relvas, 2015). Comparing across the two groups, a Mann-Whitney test indicated that the GS group had higher levels of dissatisfaction than the PG group. This moderate difference was marginally significant for the total score and the Media and Community dimension.

With regard to family functioning (SCORE-15) (Table 1), both the PG and GS groups reported having higher levels of difficulty with family functioning than the general population (Pereira, 2011), which was reflected in their total scores and in the Family Difficulties and Family Communication dimensions (considering the mean and standard deviation). A Mann-Whitney test showed that the groups differed from each other with regard to Family Difficulties, with the GS group reporting higher scores than the PG groups (i.e., suggesting greater difficulty; marginally significant differences and medium effect).

Given the cut-off point that has been proposed in previous literature (Spanier, 1976), the GS group showed poor levels of marital adjustment (DAS) (Table 1). According to a Mann-Whitney test, the differences between the two groups were statistically significant for the total scores, Dyadic Satisfaction and Dyadic Consensus (medium effect), with the GS group having lower scores than the PG group.

Marital satisfaction (the total score; EASAVIC) (Table 1) for the PG and GS groups was lower than for the general population (Pires, 2008), if the range that resulted from the difference between the mean and standard deviation is considered.

Table 1
Results of QOL, SCORE-15, DAS and EASAVIC

Variables	PG		GS		Group Comparison	Reference Values	
	M	SD	M	SD		M	SD
QOL Total	59.74	12.80	51.77	8.92	U(30) = 73.00, $p = .054$, $r = -.34$	62.97	11.31
Media and Community	16.11	3.03	13.54	2.50	U(30) = 62.50, $p = .018$, $r = -.42$	14.93	3.07
Financial Well-Being	12.05	4.85	9.46	3.20	U(30) = 86.50, $p = .157$	13.92	4.30
Time	15.37	4.87	13.77	4.11	U(30) = 95.00, $p = .287$	15.70	4.05
Family, Friends and Health	16.21	4.05	15.00	2.45	U(30) = 93.00, $p = .254$	18.89	3.20
SCORE-15 Total	3.10	0.70	3.41	0.65	U(30) = 152.50, $p = .270$	2.02	0.58
Family Strengths	2.05	0.82	2.45	0.66	U(30) = 164.00, $p = .126$	1.90	0.64
Family Difficulties	3.59	0.89	4.14	0.74	U(30) = 169.00, $p = .081$, $r = -.31$	2.06	0.73
Family Communication	3.65	0.89	3.63	0.89	U(30) = 130.00, $p = .821$	2.22	0.75
DAS Total	103.33	14.6	86.31	20.56	U(30) = 64.00, $p = .034$, $r = -.38$	Scores lower than 100 = poor dyadic adjustment	
Dyadic Consensus	45.11	5.31	37.92	11.12	U(30) = 69, $p = .037$, $r = -.37$	-	-
Dyadic Satisfaction	35.17	6.31	29.77	6.37	U(30) = 63.50, $p = .031$, $r = -.39$	-	-
Affectional Expression	8.42	2.12	6.85	3.21	U(30) = 88.00, $p = .182$	-	-
Dyadic Cohesion	14.68	4.58	11.77	5.20	U(30) = 83.50, $p = .126$	-	-
EASAVIC Total	176.21	34.55	141.08	49.84	U(30) = 67.50, $p = .041$, $r = -.36$	208.11	31.10
Feelings and Expression of Feelings	26.42	5.60	22.54	8.30	U(30) = 99.00, $p = .362$	-	-
Emotional Intimacy	28.89	6.72	23.54	8.64	U(30) = 78.50, $p = .084$, $r = -.31$	-	-
Sexuality	25.00	6.13	20.38	8.65	U(30) = 81.00, $p = .108$	-	-
Continuity of Relationship	12.42	3.53	9.23	4.73	U(30) = 69.50, $p = .037$, $r = -.37$	-	-
Physical and Psychological Traits	16.47	3.37	13.31	4.94	U(30) = 61.00, $p = .084$, $r = -.31$	-	-
Love	109.21	22.51	89.00	31.75	U(30) = 78.50, $p = .084$, $r = -.31$	-	-
Functions	67.00	13.83	52.08	19.38	U(30) = 59.00, $p = .013$, $r = -.44$	-	-
Free-time	6.42	1.87	5.15	2.38	U(30) = 88.00, $p = .182$	-	-
Autonomy/Privacy	7.89	1.82	6.77	2.71	U(30) = 93.00, $p = .254$	-	-
Communication and Conflicts	19.05	4.98	13.62	6.17	U(30) = 61.00, $p = .016$, $r = -.42$	-	-
Relationships Outside the Family	18.95	4.52	15.92	5.72	U(30) = 86.00, $p = .158$	-	-
Functioning	67.00	13.83	52.08	19.38	U(30) = 67.50, $p = .030$, $r = -.38$	-	-

Note. Bold indicates statistical significance ($p \leq .05$).

A Mann-Whitney test indicated that the differences between the groups (in the total scores) were statistically significant (medium effect), with the GS group having a lower score than the PG group. Dimensionally, this trend was maintained, with lower satisfaction levels for the GS group than the PG group (statistically or marginally significant differences; medium effect).

On the individual level, both the PG and GS groups had lower scores on the total congruence scale and for the Intra/Interpersonal dimension (i.e., CS) than the general population (regarding the mean and standard deviation) (Table 2). For the Spiritual/Universal dimension, the PG group had lower scores than the general population, whereas the GS group had similar scores to the general population (regarding the mean and standard deviation) (Cunha, Silva, & Relvas, 2014). A Mann-Whitney test revealed that the differences between the two groups for the total scores and the Spiritual/Universal dimension were marginally significant (medium effect), with lower levels of congruence for the PG group than the GS group.

Regarding the differentiation of the self (DSI-R) (Table 2), both the PG and GS groups scored in accordance with the reference values for the general population (Major et al., 2014). Moreover, a Mann-Whitney test did not show any statistically significant differences between the two groups, which was also evident with regard to the dimensions.

Regarding the psychopathological symptoms (BSI) (Table 2), according to the PSI cut-off for emotionally disturbed populations (> 1.7) (Canavarro, 1999), the GS group's scores showed emotional disturbance (PSI = 1.82). The PG group showed borderline levels of emotional disturbance (PSI = 1.69); however, rounding the values up revealed that members of this group had a high likelihood of becoming emotionally disturbed. A Mann-Whitney test revealed that the two groups did not differ significantly with regard to the global indices (i.e., GSI and PST) or the dimensions of the BSI.

Group Comparisons: Complementary Questions from the SCORE-15

The words that the participants used to describe their families (i.e., “What words best describe your family?”) were categorized into the following three groups: (1) positive (e.g., union, love, respect, support, and harmony), (2) negative (e.g., secretive, distant, jealous, and complex), and (3) neutral (e.g., normal and family). For the PG group, 12 (63.15%) participants used positive words, three (15.79%) used negative words, and three (15.79%) used neutral words (with one missing value). For the GS group, five (38.46%) participants used neutral words to describe their families, five (38.46%) used negative words and three (23.07%) used positive words. To calculate the statistical significance of these differences, the neutral and negative words were combined to satisfy the minimum expected cell frequency assumption for the chi-square test, which indicated that the differences between the PG and GS groups were statistically significant [$\chi^2(1, N = 31) = 4.13, p = .042$]. Given that this was a residual analysis, these difference were primarily because of the following: (1) there were more positive and fewer negative/neutral words listed by the PG group than would

Table 2
Results of CS, DSI-R and BSI

Variables	PG		GS		Group Comparison	Reference Values	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>
CS Total	60.53	12.60	68.38	10.79	$U(30) = 172.50,$ $p = .059, r = .33$	78.41	10.36
Spiritual/Universal	27.16	7.89	34.23	11.90	$U(30) = 172.50,$ $p = .059, r = .33$	39.30	10.34
Intra/Interpersonal	33.37	7.40	34.15	5.93	$U(30) = 130.00,$ $p = .821$	50.46	8.46
DSI-R Total	3.63	0.53	3.79	0.39	$U(30) = 155.00,$ $p = .238$	3.88	0.52
Emotional Reactivity	3.21	0.86	3.16	0.58	$U(30) = 113.00,$ $p = .705$	-	-
I Position	4.04	0.80	4.24	0.58	$U(30) = 143.50,$ $p = .448$	-	-
Emotional cut-off	4.08	0.70	4.32	0.81	$U(30) = 154.00,$ $p = .254$	-	-
Fusion with Others	3.20	0.53	3.44	0.69	$U(30) = 139.00,$ $p = .570$	-	-
PSI	1.69	0.52	1.82	0.56	$U(30) = 139.50,$ $p = .570$	1.56	0.39
GSI	1.18	0.63	1.25	0.65	$U(30) = 132.00,$ $p = .762$	.84	0.48
PST	35.00	10.01	35.00	10.50	$U(30) = 122.50,$ $p = .970$	26.99	11.72
Somatization	0.73	0.47	1.05	0.95	$U(30) = 130.00,$ $p = .821$	0.57	0.92
Obsessions-compulsions	1.62	0.87	1.60	0.75	$U(30) = 127.00,$ $p = .910$	0.573	0.916
Interpersonal Sensitivity	1.11	0.81	1.33	0.87	$U(30) = 142.50,$ $p = .472$	1.29	0.88
Depression	1.44	0.87	1.51	0.79	$U(30) = 133.00,$ $p = .734$	0.96	0.73
Anxiety	1.14	0.77	1.45	0.88	$U(30) = 149.50,$ $p = .323$	0.89	0.72
Hostility	1.25	0.68	1.18	0.75	$U(30) = 115.00,$ $p = .762$	0.94	0.77
Phobic Anxiety	0.47	0.55	0.38	0.48	$U(30) = 119.00,$ $p = .880$	0.89	0.78
Paranoid Ideation	1.43	0.65	1.54	0.93	$U(30) = 123.00,$ $p = 1.000$	0.42	0.66
Psychoticism	1.15	0.88	1.02	0.73	$U(30) = 113.50,$ $p = .705$	1.06	0.79

be expected if these variables were independent variables (residual 2.4 and -2.4), and (2) there were fewer positive and more negative/neutral words listed by the GS group than would be expected if these variables were independent (residual -2.4 and 2.4). The magnitude of the differences was medium ($V = .43$). The question “What is the

main problem/difficulty that your family is currently facing?” triggered a wide range of answers, which were grouped into the following four categories: financial problems (e.g., financial difficulties and economic crisis), gambling, oneself (e.g., “It is me”), and various other responses—specifically, diverse problems, such as health, death in the family, birth of a child, excessive domestic responsibilities, and marriage. For the PG group, nine (47.37%) participants responded that there were financial problems, five (26.32%) mentioned various problems, three (15.79%) considered themselves as the primary family problem, and 2 (10.53%) mentioned gambling. For the GS group, the category “various” was the most representative ($N = 6$, 46.15%), followed by financial problems ($N = 5$, 38.46%) and gambling ($N = 2$, 15.38%). A Fisher’s exact test revealed that the differences between the groups were not statistically significant ($p = .408$). Another question was the following: “In your opinion, what treatment would be most useful to help with the gambling problems: individual therapy, couples therapy, family therapy or none?” The majority of PG group subjects chose the individual therapy option ($N = 12$, 63.16%), five (26.32%) chose family therapy and one (5.26%) chose the “none” option (with one missing value). For the GS group, five (38.46%) chose individual therapy, four (30.77%) chose family therapy, and three (23.08%) chose couples therapy (with one missing value). The differences between the groups were not statistically significant according to the results of a Fisher’s exact test ($p = .093$).

Influence of Socio-Demographic Variables

A two-way between-groups analysis of variance (two-way ANOVA) (Table 3) was conducted to examine the influences of sex and group (i.e., PG and GS) on the dependent variables (i.e., the total scores). An adjusted alpha level ($p \leq .10$) was used to compensate for the small sample size (Stevens, 2009). The interaction effect (sex*group) did not reach statistical significance for any of the independent variables. The main effect of sex was statistically significant for the QOL, EC, DSI-R and BSI, with higher scores for women on the QOL, EC and DSI-R and higher scores for men on the BSI. The effect sizes were moderate to large ($.11 < \eta_p^2 < .21$). There were statistically significant main effects of group for the QOL, SCORE-15, DAS and EASAVIC, with the GS group having higher scores (i.e., greater difficulty) on the SCORE-15 and lower scores (i.e., greater levels of dissatisfaction) on the QOL, DAS and EASAVIC than the PG group. The effect sizes were moderate to large ($.11 < \eta_p^2 < .27$).

The influence of the socio-demographic variables on the instruments’ total scores (i.e., the dependent variables) within the groups was also examined (with a Mann-Whitney test, chi-square test or Fisher’s exact test). The socio-demographic variables (i.e., sex, age, education, and socioeconomic status) were not statistically different across any of the dependent variables (i.e., the total scores) for the PG group. For the GS group, a Mann-Whitney test revealed that women had stronger results (i.e., statistically significant) with regard to quality of life (i.e., the total score) [$U(11) = 4$, $p = .030$, $r = -.60$] (large effect) than men. The remaining socio-demographic variables (i.e., age, education, and socioeconomic status) were not statistically different across any of the dependent variables for the GS group.

Table 3
*Results of Two-way ANOVA (sex*group)*

	Interaction effect	Main effect	
		Sex	Group (PG; GS)
QOL	$F(1,28) = 4.24, p = .85$	$F(1,28) = 7.49, p = .01, \eta_p^2 = .21$	$F(1,28) = 10.49, p < .01, \eta_p^2 = .27$
SCORE-15	$F(1,28) = 0.46, p = .50$	$F(1,28) = 2.64, p = .12$	$F(1,28) = 3.34, p = .08, \eta_p^2 = .11$
DAS	$F(1,28) = 2.03, p = .17$	$F(1,28) = 1.86, p = .18$	$F(1,28) = 6.43, p = .08, \eta_p^2 = .18$
EASAVIC	$F(1,28) = 0.93, p = .34$	$F(1,28) = 0.85, p = .37$	$F(1,28) = 5.76, p = .02, \eta_p^2 = .19$
EC	$F(1,28) = 0.37, p = .55$	$F(1,28) = 3.47, p = .073, \eta_p^2 = .11$	$F(1,28) = 0.22, p = .64$
DSI-R	$F(1,28) = 0.92, p = .35$	$F(1,28) = 4.20, p = .05, \eta_p^2 = .13$	$F(1,28) = 0.21, p = .65$
BSI (GSI)	$F(1,28) = 0.14, p = .71$	$F(1,28) = 5.20, p = .03, \eta_p^2 = .16$	$F(1,28) = 2.30, p = .14$

Note. Bold indicates statistical significance ($p \leq .05$).

Discussion

The current study's results were organized according to the following three main groups: (1) aspects in which the PG and GS groups showed similar results to the general population; (2) aspects in which both groups scored lower (i.e., less adaptive functioning) than the general population; and (3) aspects in which one group scored within the reference values for the general population, whereas the other group had lower scores (i.e., less adaptive functioning) than the general population. It is important to note the following limitations of the current study prior to discussing the results: it had small sample size (i.e., non-representative), and the participants in each group were not coupled with each other (i.e., independent groups). As such, the results cannot be generalized to other study populations; however, these results are nonetheless useful as possible frames of reference.

For the first issue, the PG and GS groups were similar to the general population with regard to the quality of family life (i.e., QOL) and the differentiation of the self (i.e., DSI-R). However, most previous literature examining this topic posits that PGs have a lower quality of life than does the general population (Grant & Kim, 2005; Scherrer et al., 2005). Regarding the GSs, previous literature has not directly addressed the issue of quality of life, yet, based on the diversity of the difficulties experienced by this specific population (Ferland et al., 2008; Lorenz & Shuttlesworth, 1983; Lorenz & Yaffee, 1988), their quality of life may also be lower than that of the general population. The finding that the GSs were significantly less satisfied with their quality of family life were than the PGs (which was confirmed by the main effect of group evident in the two-way ANOVA) is consistent with results from a case study of a couple (Cunha et al., in press2), which found that the gambler in the couple mainly had areas of satisfaction, whereas the spouse had a more balanced narrative between the areas of satisfaction and dissatisfaction, including quality of life. Regarding the differentiation of the self (DSI-R), both PGs and GSs exhibited autonomous functioning that was associated with adequate levels of closeness to others (Nichols & Schwartz, 2012), having significant relationships (e.g., loved ones) and having current relationships with the family of origin (Major et al., 2014). However, these results were evident when examining the difference ranges between the

means and standard deviations for the general population. The results revealed that both the PG and GS groups tended to score lower than the general population. It is important to note that these similar results between groups cannot be because of interaction effects in the sample as the sample consisted of married participants who were not part of corresponding couples.

With regard to the second issue, it is interesting to note that the PGs and GSs showed more difficulties than did the general population at both the macro and micro levels considered in the ISMPG (Cunha & Relvas, 2014a), a finding which reflected family and individual levels. Both groups scored lower than general population on family functioning (i.e., SCORE-15) and psychological symptomatology (i.e., BSI). On one hand, this is a surprising result given that a Portuguese exploratory study (Cunha & Relvas, 2014b) found that PGs did not perceive their family functioning as more negative than control participants. However, international literature has proposed that both PGs and GSs should have more difficulty with family functioning than the general population (McComb et al., 2009). Although both groups had more difficulties than the general population with regard to these two aspects, the groups cannot be considered similar given that the GSs mentioned significantly more difficulties with family functioning than the PGs (which was confirmed by the main effect of group evident in the two-way ANOVA). This finding is consistent with previous research showing that the spouse's narrative is more indicative of problems (Cunha et al., in press2; Ferland et al., 2008). Because of differences between previous studies and the current study with regard to sample characteristics, future research is needed to understand better this result. At the micro level of the ISMPG (i.e., the individual level) (Cunha & Relvas, 2014a), both groups showed less adaptive functioning than the general population with regard to psychopathological symptoms; that is, both groups had scores that matched with emotionally disturbed populations. This finding is consistent with previous literature examining pathological gamblers, including a number of Portuguese studies (Cunha et al., in press2; Cunha & Relvas, 2014b). Moreover, international literature suggests that various psychopathological symptoms, which range from emotional to psychosomatic, are commonly experienced by gamblers (Downs & Woolrych, 2010; Ferland et al., 2008; Lorenz & Yaffee, 1989; McComb et al., 2009) and gamblers' spouses (Hodgins, Shead, & Makarchuk, 2007; Lorenz & Shuttlesworth, 1983; Lorenz & Yaffee, 1988; Lorenz & Yaffee, 1989; McComb et al., 2009). However, most of these studies did not consider the comparative dimension between the gamblers and gamblers' spouses. Therefore, the findings from previous comparative studies are not consistent. Lorenz and Yaffee (1989) identified a greater number of symptoms in the gamblers than in their spouses, whereas the Portuguese case study with a couple showed the opposite pattern. Given these contradictory results and that the aforementioned comparative studies were conducted with couples, future research is needed to shed light on these issues.

Finally, the third group of results shows that the conjugal aspect, which is the intermediate level of the ISMPG (Cunha & Relvas, 2014a), is related to the most dissonant findings between the PG and GS groups. The PGs showed marital adjustment (i.e., DAS) and satisfaction (i.e., EASAVIC) levels that were similar to the general population, whereas the GSs had more difficulties than the general population for these

aspects. Moreover, the GSs were less satisfied with their marital lives and showed poor dyadic adjustment levels when compared to the PGs (as indicated by the main effect of group in the two-way ANOVA). Differences in the dimensions may be specifically related to Dyadic Satisfaction (i.e., DAS), Dyadic Consensus (i.e., DAS), Functions (i.e., EASAVIC), Communication and Conflicts (i.e., EASAVIC) and Continuity of the Relationship (i.e., EASAVIC). This assumption regarding these aspects, in which the GSs differed from the PGs in our sample, is supported by previous literature showing that these areas are the most difficult for couples with gambling problems. For example, Functions (i.e., EASAVIC), which includes items pertaining to financial management, responsibilities, decisions and household chores, may reflect increasing responsibilities on the part of the spouse, as shown by previous studies (Fernández, Rincón, & Álvarez, 2002; Steinberg, 1993). The Communication and Conflicts (i.e., EASAVIC) dimension is related to an aspect that is described as one of the most problematic areas for this population, which is associated with gamblers' lies and deceptions (Ferland et al., 2008; Fernández et al., 2002; Heineman, 1987; Lorenz & Shuttlesworth, 1983; Martínez, Navarro, & Romero, 1993; Steinberg, 1993). The Continuity of the Relationship (i.e., EASAVIC) dimension is another area of difficulty given that a significant proportion (59%) of couples with gambling problems get divorced (Lorenz & Yaffee, 1986). The finding that GSs show high levels of marital difficulty may contrast with findings from the international literature, as both gamblers and their spouses tend to have poorer marital adjustment levels than the general population (Lee & Rovers, 2008; Wright, Sabourin, Mondor, McDuff, & Mamodhousen, 2007). Additionally, there is evidence indicating that this adjustment is poorer for gamblers than for their spouses (Lee & Rovers, 2008). However, Cunha and Relvas (2014b) found that PGs did not differ from a control group with regard to dyadic adjustment (DAS). When sexuality was utilized as an indicator of marital satisfaction, Lorenz and Yaffee (1989) found results that were consistent with the present findings, with only 34% of the PGs and 19% of the GSs ($N = 150$ couples) reporting being satisfied. With regard to sexual dissatisfaction, the GSs reported being less satisfied than the PGs. In addition to marital issues, congruence (i.e., CS; relationship with oneself, with others and with life) (Cunha et al., 2014) is another topic in which the PGs and GSs differed significantly with regard to scores. Here, the pattern of results is the opposite of the previously discussed pattern, as the GSs showed similar levels of functioning to the general population and the PGs were less congruent, particularly regarding the Spiritual/Universal dimension (i.e., the relationship with spirituality/universality; the deepest level of human nature, as manifested in the consciousness of a universal life force) (Cunha et al., 2014). Previous literature posits that both groups should have lower levels of congruence than the general population (Lee, 2002). However, the aforementioned case study (Cunha et al., in press2) suggests that the gambler's spouse may have a more congruent attitude, which is consistent with the results of the current study.

Given the composition of the two groups, with PGs being mostly men and GSs being mostly women, the dissonant results evident in the current study may be attributed to gender issues. However, the ANOVA interaction effects (sex*group) did not support this assumption, as none of the effects were statistically significant for any of the dependent variables. Thus, gender did not influence the relationship between the

groups and dependent variables (Pallant, 2015), such that being a man or woman does not explain the contradictory results evident in the current study.

Both the PGs and GSs did not recognize gambling as the main family problem. Financial problems were often mentioned by both groups, which is consistent with previous literature (Dickson-Swift, James, & Kippen, 2005; Lorenz & Yaffee, 1986; Lorenz & Shuttlesworth, 1983; Steinberg, 1993). This shift in focus from the gambling problem to other problems may lead to the conclusion that PGs and GSs do not view gambling as a family problem; rather, both groups view it as a problem on the part of the gambler. However, a number of the PGs claimed that they were the main family problem, which may provide insight regarding two results from the current study: (1) On one hand, the failure of PGs to identify marital problems is surprising, as if the blame and responsibility that they feel regarding the problems caused by their gambling does not allow them to “complain” about the marital relationship (i.e., idealization/guilt relief effect). This may reflect a sort of “denial” of the marital deterioration (i.e., denial effect; Cunha et al., in press2). (2) On the other hand, it is important to remember that these participants (in particular, those in the PG group) may feel reluctant to acknowledge that family and couple therapies may be useful for addressing their gambling problem.

In sum, both the PG and GS groups identified more difficulties concerning family functioning (i.e., SCORE-15) when compared with the general population, whereas the groups had similar results to the general population regarding quality of life (i.e., QOL). The GSs showed higher levels of difficulty and dissatisfaction than the PGs (SCORE-15), even with regard to the use of descriptive terms, as the PGs chose more positive words to describe their families than the GSs. For marital issues (i.e., DAS and EASAVIC), the GSs revealed that they experienced more difficulties. Regarding individual functioning, both groups were on the threshold of emotional disturbance (i.e., BSI), yet only the PG group was categorized as incongruent (i.e., CS). Representing the degrees of difficulty according to a tonal gradation, such that black represents the existence/identification of difficulties and white represents the opposite pattern, the three studied levels (i.e., individual, marital and family) are shown in Figure 1. The presentation of this figure highlights the lack of consensus and even the presence of antagonism between the PGs and GSs with regard to marital variables. These opposing patterns are consistent with the results of the aforementioned study case (Cunha et al., in press2), in which the spouse’s perception of relational variables (i.e., family and marital) was more negative than the gambler’s perception.

Conclusion

This results of the current study show that PGs view their family and marital functioning as less marked by difficulties than GSs, and this difference is more evident with regard to marital issues. However, in terms of individual functioning, both the PGs and GSs showed psychopathological symptoms with characteristic values ??similar to emotionally disturbed populations. It should be noted that the PGs had more problems related to congruence than the GSs.

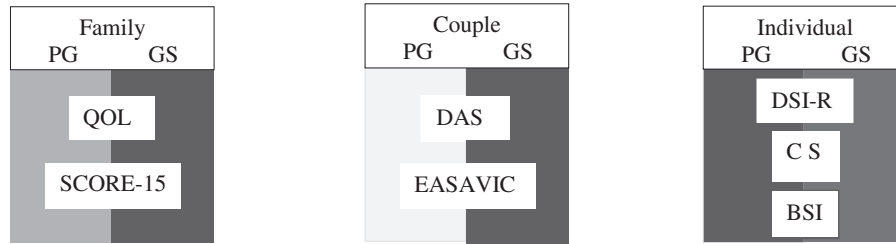


Figure 1. Representation of the degree of difficulty experienced by each studied group (PG and GS) in each level studied (darker colours represent greater levels of difficulty).

This study has the following two major limitations: (1) there was marital independence between the two subsamples, i.e., the gamblers and gamblers' spouses belonged to different marital dyads; and (2) a small sample size that limits the implications of the current results (e.g., issues with generalization, a need to use nonparametric statistics and restrictions related to basic analyses). However, this study contributes to the current literature by reducing the empirical gap evident in studies examining the marital lives of PGs. Furthermore, the current results question a number of "truths" that are taken for granted in previous literature (e.g., PGs' perception of marital problems). Couples therapists who work with these dyads should be aware of the challenges that are inherent in divergent perspectives (cf., Cunha et al., in press2).

Future research should focus on developing qualitative or mixed method studies to analyze the narratives of PGs and GSs regarding their marital lives to shed light on the nuances within their perspectives.

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Validation of the Gambling Perceived Stigma Scale (GPSS) and the Gambling Experienced Stigma Scale (GESS)

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Abstract

Australian research shows that stigma is a major barrier to treatment seeking (Rockloff, 2004) and may impede the accurate measurement of problem gambling prevalence. To date, no validated tool is available to assess the stigma associated with gambling. This project investigated both internally experienced and externalised (perceived) stigma associated with gambling, as measured with two new survey instruments were developed for this purpose. We reviewed existing measures of stigma associated with other non-gambling behaviours (e.g., alcohol, drug abuse, smoking, eating disorders) to construct items that were conceptually related to gambling behaviour. The scales were then validated by using a large representative community sample ($N = 1366$). Internal reliability analysis, factor analysis, and multivariate analysis were used to analyse the results and to explore the measurement of perceived and self-stigma in a community sample, taking into account respondents' gambling experience and relevant socio-demographic information. Results supported a model of perceived stigma along two dimensions (Contempt and Ostracism) and a unidimensional model of experienced stigma. The scales were shown to have strong psychometric properties and to differentiate well between stigmas associated with recreational and problem gambling behaviours. A scale that measures stigma related to gambling behaviour will provide researchers, policymakers, industry bodies, and clinicians with a tool that contributes to a growing understanding of the gambling experiences of individuals and the impacts of gambling on communities.

Keywords: Gambling, stigma, scale, scale development, enacted stigma, perceived stigma, problem gambling

Résumé

Une étude australienne démontre que la stigmatisation est un obstacle important à la recherche de traitement (Rockloff, 2004) et peut nuire à la mesure exacte de la prévalence des problèmes de jeu. À ce jour, il n'existe aucun outil éprouvé permettant

d'évaluer la stigmatisation associée au jeu. Ce projet de recherche visait à étudier la stigmatisation éprouvée intérieurement et extériorisée (perçue) en lien avec le jeu au moyen de deux nouveaux questionnaires conçus à cette fin. Nous avons consulté des mesures existantes de la stigmatisation associée à d'autres comportements (consommation d'alcool ou de drogue, tabagisme, troubles alimentaires, etc.) afin de concevoir des questions conceptuellement rattachées au jeu. Les échelles ont été validées à partir d'un échantillon considérable et représentatif de la société ($N = 1366$). Les réponses aux questionnaires ont été soumises des analyses de la fiabilité interne, des facteurs et à variables multiples afin d'évaluer et de mesurer la stigmatisation perçue et auto-infligée au sein de l'échantillon étudié, tout en tenant compte des données sociodémographiques pertinentes et de l'expérience du jeu des répondants. Les résultats sont compatibles avec un modèle à deux dimensions (ostracisme et mépris) de la stigmatisation perçue et avec un modèle unidimensionnel de la stigmatisation éprouvée. Les échelles, dont les fortes propriétés psychométriques ont été démontrées, ont permis de bien distinguer les différentes formes de stigmatisation associées au jeu récréatif et au jeu pathologique. Une échelle de mesure de la stigmatisation liée au jeu constituera pour les chercheurs, les décideurs, les organismes du secteur du jeu et les cliniciens un outil contribuant à une compréhension accrue des expériences de jeu que peut vivre une personne et des conséquences sociales du jeu.

Introduction

In the 50 years since Goffman's (1963) seminal work on stigma, significant efforts have been made to refine the conceptualisation of stigma as a phenomenon, to explore the experience and effects of stigma, and to quantify the level of stigma associated with different stigmatising circumstances. In relation to gambling, stigma has consistently been identified as a barrier to treatment seeking for people experiencing problems with gambling (Gainsbury, Hing, & Suhonen, 2013; Pulford et al., 2009; Rockloff & Schofield, 2004; Suurvali, Cordingley, Hodgins, & Cunningham, 2009). However, the impact of stigma related to gambling is broader in that stigma affects individuals who experience problems with gambling before and beyond treatment, their friends and family, the measurement of problem gambling (PG) and gambling-related harm, and the conduct of research into gambling. Given this broader impact, an increased understanding of both the process of gambling-related stigma and the ability to quantify its impact will be of value. The present study relates to the quantification of this impact through the development and validation of a gambling-specific stigma scale.

Defining and Conceptualising Stigma

No universally accepted definition of stigma exists. Link and Phelan (2001) postulated that numerous definitions and conceptualisations of stigma have been

proposed, primarily because of the broad range of behaviours and conditions that stigma has been applied to and the influence of multiple disciplines having contributed to the research on stigma. For the present study, stigma is defined as the co-occurrence of labelling, stereotyping, separation, status loss, and discrimination in a context in which power is exercised (Hatzenbuehler, Phelan, & Link, 2013, p. 814). The present study also utilises Goffman's (1963) conceptualisation of stigma in terms of it being enacted, perceived, and internalised (felt). Each of these experiences of stigma is considered in relation to gambling and the ability of the characteristic to be incorporated into a scale.

Enacted stigma is defined as experiences of social discrimination (Luoma et al., 2007). This discrimination may occur in relation to gaining or maintaining employment, gaining or maintaining other resources such as housing, or being interpersonally accepted (Horch, 2011; Horch & Hodgins, 2008). Social discrimination is based on the labelling of the stigmatised condition and its subsequent association with undesirable characteristics or stereotypes (Link & Phelan, 2001), which then become associated with the individual such that he or she comes to be identified and judged by the label. In the case of gambling, one study identified common stereotypes to include labels such as impulsive, irresponsible, risk taking, and greedy, with individuals being perceived as less dependable, responsible, realistic, and self-controlled (Horch, 2011).

The experience of stigma can be described as that of perceiving or believing in the presence of stigmatising attitudes and/or actions in a society. Hence, it is the perception of stigma (whether or not it has been enacted) that affects the beliefs and subsequent behaviours of the person who gambles, regardless of the intent of others (Luoma et al., 2013). Consequently, in the present study, enacted stigma has been conceptualised within the construct of perceived stigma. Although the concept of enacted stigma is important in constructing a complete understanding of stigma, it was beyond the scope of the current investigation to objectively observe or measure incidents of enacted stigma, and self-reporting would be heavily influenced by social desirability bias (the desire to seem more positive or normal) and evaluation apprehension (the desire to avoid being evaluated negatively by investigators) and thus unlikely to produce accurate data. However, in line with the false consensus effect and social projection, an assessment of perceived stigma attributed by both non-gamblers and gamblers alike may be expected to reflect internally held attitudes and beliefs likely to be enacted (Ames, 2004; Dunning & Hayes, 1996; Krueger & Clement, 1997; Mullen et al., 1985; Nickerson, 1999; L. Ross, Greene, & House, 1977). Thus, perceived stigma may be a more effective measure in terms of outcomes.

The perception of stigma (an individual's beliefs about how others feel towards the stigmatised condition) may also contribute to internalising or personally applying these beliefs to oneself (Link, 1987), although this is not always the case (Luoma et al., 2013). The present study therefore focuses on perceived and internalised stigma.

Stigma and Gambling

Stigma has been identified as a barrier to both self-identification and help-seeking behaviour for PG (Cooper, 2001; Dhillon, Horch, & Hodgins, 2011; Pulford et al., 2009; Rockloff & Schofield, 2004; Suurvali et al., 2009; Suurvali, Hodgins, Toneatto, & Cunningham, 2012). Stigma as a barrier to help seeking is consistent with that in relation to numerous conditions, including, but not limited to, depression (Barney, Griffiths, Christensen, & Jorm, 2010; Caelear, Griffiths, & Christensen, 2011; Castaldelli-Maia et al., 2011), HIV (Chaudoir et al., 2012; Derlega, Winstead, Gamble, Kelkar, & Khuanghlawn, 2010; Herek & Capitanio, 1999; Rutledge, Whyte, Abell, Brown, & Cesnales, 2011), mental health (Björkman, Svensson, & Lundberg, 2007; Gibbs, Rae Olmsted, Brown, & Clinton-Sherrod, 2011), alcoholism (Fortney et al., 2004; R. Gray, 2010; Smith, Dawson, Goldstein, & Grant, 2010), substance abuse (Room, 2005), abortion (Kumar, Hessini, & Mitchell, 2009), chronic illness (Cataldo, Slaughter, Jahan, Pongquan, & Hwang, 2011), obesity (Lillis, Luoma, Levin, & Hayes, 2010), suicide (Batterham, Caelear, & Christensen, 2013), homelessness (Breakey, Fischer, Nestadt, & Romanoski, 1992), and incarceration (LeBel, 2012; Murray, 2007). Also consistent with stigma in these conditions, stigma related to gambling can vary depending on factors such as gender, culture, education, and location (Carroll, Rodgers, Davidson, & Sims, 2013; Cooper, 2001; Dhillon et al., 2011; Horch, 2011; Horch & Hodgins, 2008, 2013; Scull & Woolcock, 2005).

This impact of stigma on help-seeking behaviour alone can be seen to contribute significantly to the population level harm caused by PG. Current estimates of PG prevalence within the Australian population are about 1%, with a further 1.4% to 2.1% considered to be at risk (Productivity Commission, 2010). However, only a small proportion of people experiencing problems with gambling seek professional help, estimated at between 8% and 17% (Productivity Commission, 2010; Suurvali, Hodgins, Toneatto, & Cunningham, 2008). The low numbers of people experiencing problems with gambling who seek professional assistance in Australia is consistent with overseas findings (Suurvali et al., 2008), but these rates are lower than for other mental health disorders (Gainsbury et al., 2013), which are estimated at about 46% (Whiteford et al., 2014).

A number of reasons for people avoiding treatment have been offered, including denial (Hardoon, Derevensky, & Gupta, 2003; Pulford et al., 2009; Rockloff & Schofield, 2004; Suurvali et al., 2009, 2012), pride (Pulford et al., 2009), a desire to deal with problems without professional help (Gainsbury & Baszczynski, 2011; Gainsbury et al., 2013; McMillen, Marshall, Murphy, Lorenzen, & Waugh, 2004; Rockloff & Schofield, 2004), and perceived stigma resulting in experiences of shame or embarrassment (Carroll et al., 2013; Gainsbury et al., 2013; Horch, 2011; Pulford et al., 2009; Rockloff & Schofield, 2004). However, evidence of a reduction in harm has been reported for those who engage in treatment for PG, whereas delaying intervention may lead to increased complexity and co-morbidity (K. Gray, Oakley Browne, & Radha Prabhu, 2007; Pallesen, Mitsem, Kvale, Johnsen, & Molde, 2005; Soberay, Faragher, Barbash, Brookover, & Grimsley, 2013; Toneatto & Ladoceur, 2003). Therefore, there are clear

benefits associated with addressing barriers to help-seeking behaviour at an individual and population level.

Although the intent and application of stigma measurement across health and social conditions has been diverse, few studies to date have been done in the area of gambling stigma, and they have tended to use modified versions of existing stigma measurement tools that relate to other conditions such as mental illness and substance abuse (Horch, 2011; Horch & Hodgins, 2008). A critical step in evaluating efforts to reduce stigma is the development, validation, and consistent use of scales that can measure the effect (Stangl, Lloyd, Brady, Holland, & Baral, 2013). To date, a single, validated scale that can measure the different forms of stigma specific to gambling does not exist. The present study sought to address this gap by developing and validating a gambling-specific stigma scale.

Conceptual Framework

We adopted a conceptual framework proposed by E. E. Jones et al. (1984) in order to provide structure to our review of existing stigma scales that are related to other conditions. Recognising the uniqueness of stigmatised conditions, E. E. Jones et al. (1984) proposed six dimensions that captured the variability in how stigma has been identified in the literature and previously used in scale development and evaluation (Barney et al., 2010). The six dimensions are concealability, course, disruptiveness, aesthetic qualities, origin, and peril (E. E. Jones et al., 1984).

The dimension of concealability is concerned with whether the condition or behaviour is obvious to others and the extent to which that visibility can be controlled by the individual. This dimension is relevant to gambling behaviours because they are generally easily concealed, some more so than others. Furthermore, research suggests that the concealable nature of gambling is of significance to those experiencing problems with gambling and may enable the behaviours (Horch & Hodgins, 2008).

Course, as a dimension, is concerned with the perceived pattern of change, outcome, or life course of the condition or behaviour. For example, stigma associated with mental illness frequently references the belief that the condition is permanent (Björkman et al., 2007). This dimension is of relevance to gambling because of misconceptions related to life course (that all gamblers will become problem gamblers), or permanence (once a gambler, always a gambler). The misconceptions in relation to permanence are of particular importance in understanding beliefs that may hinder treatment seeking and helping behaviours among social support networks (Horch, 2011; Suurvali et al., 2009).

The dimension of disruptiveness refers to the extent to which the condition or behaviour can hinder interpersonal interaction and communication. This is of particular relevance to gambling, which requires the investment of time away from other activities and has been identified as being a fundamental cause of harm experienced by family and friends of those who experience problems with gambling (Darbyshire, Oster, & Carrig, 2001; Dickson-Swift, James, & Kippen, 2005;

Dowling, Smith, & Thomas, 2009; Ferland et al., 2008; Gaudia, 1987; Lesieur & Rothschild, 1989; McComb, Lee, & Sprenkle, 2009; Wurtzburg & Tan, 2011).

Aesthetic qualities reflect the extent to which the person with the condition or behaviour becomes less attractive or more repellent as a function of that condition or behaviour. For example, physical attributes associated with obesity may lead to perceptions of laziness, poor hygiene, and unattractiveness (Lillis et al., 2010), whereas stigma associated with homelessness is grounded heavily in the aesthetic dimension because of difficulties involved in accessing the resources to attend to cleaning and grooming (Phelan, Link, Moore, & Stueve, 1997). In relation to gambling stigma, it has been postulated that the aesthetic dimension may centre more on character (perceptions of greed, laziness, or irresponsibility) than on physical appearance.

The dimension of origin reflects perceptions of the circumstances under which the condition or behaviour originated, including attributions of responsibility for the condition. Research has found that attributions of individual responsibility are often associated with stigma for particular conditions (Weiner, Perry, & Magnusson, 1988) such as HIV (Kalichman et al., 2009; Rutledge et al., 2011) and lung cancer (Cataldo et al., 2011), as well as with behaviourally based stigmas associated with alcoholism (Peluso & Blay, 2008) and abortion (Kumar et al., 2009). This dimension has a strong influence on internalisation of responsibility and can be a barrier to both treatment seeking and offering support (Derlega et al., 2010; Horsch, 2011). The attribution of the origin of the behaviour is highly pertinent to stigma associated with gambling. Origin in relation to gambling relates to how the gambling behaviour started and progressed, as well as the degree to which the responsibility for gambling problems can be attributed to individual factors (e.g., weakness of character), or situational factors (e.g., exposure to negative role models, the need to escape stressful life events). Attribution theory suggests that when an individual's condition or behaviour is considered to be under the individual's control, or the individual is responsible, others are more likely to withhold help and avoid the person (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Weiner et al., 1988). These behavioural responses are related to the feelings of anger towards the affected individual. Conversely, if the condition is considered to be due to situational rather than individual factors, then there may be feelings of pity towards the person, which can result in helping behaviours (Corrigan, River, et al., 2001).

Peril reflects the perceived likelihood, imminence, or severity of danger to others. Danger to others is commonly associated with incarceration (LeBel, 2012), mental illness (Björkman et al., 2007), alcoholism, and substance abuse (Peluso & Blay, 2008; Room, 2005; Schomerus et al., 2011). Although perceived risk or danger in relation to violence or physical harm may not be of relevance to gambling (Afifi, Brownridge, MacMillan, & Sareen, 2010), stigma associated with gambling behaviours related to the dimension of peril may be reflected by assumptions of criminal behaviour (e.g., theft), financial risk, the impact on the family's well-being, or dishonesty.

Compatibility of Other Fields of Stigma Research

We assessed stigma associated with a range of conditions and behaviours in other fields of research in terms of its compatibility with E. E. Jones et al.'s (1984) framework. The fields (or conditions) considered for inclusion were mental health, drugs and substance abuse, HIV, incarceration, homelessness, chronic diseases, obesity, abortion, and suicide.

Of the fields examined, the stigma associated with mental health, alcohol, and substance abuse were seen to be most readily comparable to gambling-related stigma on all six dimensions of the framework (concealability, course, disruptiveness, aesthetic, origin, and peril). Their relevance to the current study was also considered in terms of the existing conceptualisation of PG as a mental illness that can be diagnosed in accordance with the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013), or as an addictive behaviour.

Problem gambling shares a number of common characteristics with alcohol and substance abuse that are of relevance to the experience of stigma associated with the condition. People experiencing these conditions commonly have high rates of co-morbidities and co-stigmas (Corrigan et al., 2005; Poon, Saewyc, & Chen, 2011; Raley, 2012) complex causal relationships for the condition(s) (Crawford, Rudolph, Jones, & Fuller, 2012; Room, 2005), often present to health services for other issues (Aviram, 2006), cultural differences (Gibbs et al., 2011), and differing levels of stigma, depending on the type of product consumed (Crawford et al., 2012; Palamar, Kiang, & Halkitis, 2012). Like gambling, alcohol and substance abuse are also considered adaptive disorders, with stigma affecting issues such as treatment seeking (Fortney et al., 2004; Gibbs et al., 2011), relapse (Harris & McElrath, 2012), and poorer health outcomes (Ahern, Stuber, & Galea, 2007; Anitha, 2007; R. Gray, 2010; Smith et al., 2010). Emerging areas of common relevance also exist in terms of increased accessibility and availability, as well as influence on youth (Aviram, 2006; Palamar et al., 2012). Further similarities exist in terms of attribution of responsibility, in which the person with the addiction is portrayed or viewed as personally responsible for the condition and viewed more unfavourably than those with other stigmatising conditions (Corrigan, Kuwabara, & O'Shaughnessy, 2009; Palamar, 2010; Raley, 2012). Work already undertaken on developing scales to measure stigma related to alcohol and substance abuse also informed the present study in terms of providing methodological guidance on managing the differences between the products being consumed, cultural differences, and even the stigmatisation of treatment facilities.

Method

Identification of Existing Stigma Scales

To inform the development of the scale, we narrowed the literature review to identify existing measurement tools in the relevant conditions of stigma. Searches were undertaken in both psychology and health databases by using search terms that

included alternate names of the stigmatised conditions or behaviours and the terms “stigma,” “stigma AND scale,” “scale AND development,” and “stigma AND measurement.” Additional studies were identified by using a snowballing method, and grey literature was searched by using Google Scholar. Only studies that were written or translated into English were included.

From an initial scan of the title and abstract, 90 papers were identified as being of potential relevance, of which 64 included a stigma measurement tool. This list was further reduced to 27 papers of relevance with 15 scales identified. Exclusion criteria consisted of the scale being misaligned with the conceptual framework or including items that were not easily adapted to describe gambling or PG behaviours.

The 15 scales were then considered against the following inclusion criteria: the scale was readily available, it mapped onto multiple dimensions of the conceptual framework that had been adopted, it had some or all psychometric properties published in the same or in a separate article, and it had been used in at least two other studies. If a scale was found to have items that were easily transferable to the gambling context and had unique properties not used by other scales, it was also considered for inclusion. From the group of 15 scales, eight met the inclusion criteria (see Appendix A).

Bogardus’ Social Distance Scale was also considered for inclusion, in addition to modified versions of it (Butler & Gillis, 2011; Feldman & Crandall, 2007; Horch, 2011; Norman, Windell, & Manchanda, 2012); however, the scales already chosen for the present study included sufficient items to capture measures of social distance. Examples of these items include “Most people would be willing to accept a former mental patient as a close friend” (Link, 1987) and “I do not want to live next door to another depressed person” (Kanter, Rusch, & Brondino, 2008).

Item Selection

Over 150 items from the eight identified scales were mapped against the framework’s six dimensions and also categorised as perceived or self-stigma. The categorisation of the items against the framework was then validated by a sorting task undertaken by a group of psychologists and post-graduate students. The results of the task were used to refine the alignment of the dimensions with the framework and to reduce the number of items where there was substantial disagreement. A further reduction in items was achieved by removing items based on repetition, relevance to the dimension, and practicality. This resulted in a final pool of 36 items that were relevant to the perceived stigma of gambling and a further 18 items that were relevant to the experienced (self) stigma of gambling. The final item pools in the perceived and experienced stigma scales were then validated in a large population sample.

Participants

A total of 1,370 Australian adults (50.6% female) participated in the Australian Health and Social Sciences (AHSS) survey administered by the Population Research

Laboratory at Central Queensland University. The AHSS survey comprises a panel of Australian adults randomly recruited from each state and territory via computer-assisted telephone interviewing to be part of a longitudinal study panel. Panel members provide basic demographic information and sufficient background information to be screened for more specific subsamples and are invited to take part in regular AHSS surveys throughout the year. At the commencement of the current study, there were 3,165 AHSS panel members (response rate 44.96%). Participants ranged in age between 19 and 92 years ($M = 58.89$, $SD = 12.68$). A further 53 respondents logged onto the survey but exited prior to completion and have been excluded from this analysis.

Materials

Gambling Perceived Stigma Scale (GPSS). The GPSS consisted of 36 items adapted from existing stigma scales, as outlined in previous sections, with six items assessing each of the six dimensions of stigma: concealability, course, disruptiveness, aesthetics, origin, and peril (Barney et al., 2010; E. E. Jones et al., 1984). Within each dimension, three items measured perceived stigma associated with recreational gamblers and the remaining three items were targeted towards stigma associated with those experiencing gambling problems (18 total items each). An alternate form was also constructed in which the target of the probes (recreational/problem gamblers) was reversed. Each item was measured on a scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), with higher scores indicating greater endorsement of stigmatised views. Items were pre-tested by the researchers and assigned to the dimensions of stigma on the basis of a sorting task performed by staff members and post-graduate students (not reported here).

Gambling Experienced Stigma Scale (GESS). The GESS consisted of 18 items measuring respondents' own experiences of stigma, with three items assessing each of the six dimensions of stigma (E. E. Jones et al., 1984). Scoring of items was identical to that of the GPSS, although no alternate form was used.

Consumption Screen for Problem Gambling (CSPG). The CSPG is a three-item measure of gambling consumption rather than harm (Rockloff, 2012). Scores range from 0 to 13, with scores of 4 or more defined as the cut-off point for identifying individuals likely to be experiencing gambling problems. The scale is high in internal consistency (Cronbach's $\alpha = .93$), with corrected item-total correlations for the three CSPG questions of .83, .87, and .94.

Problem Gambling Severity Index (PGSI). The PGSI is a nine-item measure of PG risk from the CPGI (Ferris & Wynne, 2001). The scale is intended for use within a general population (rather than as a clinical tool), with items measured on a 4-point scale ranging from 0 (*never*) to 3 (*almost always*). PGSI scores range from 0 to 27, with scores of 8 or more reflecting high risk of PG. Reliability of the PGSI has been reported as adequate in terms of both internal consistency (Cronbach's $\alpha = .84$) and test-retest reliability ($r = .78$).

Attitudes Towards Gambling Scale (ATGS; Orford, Griffiths, Wardle, Sproston, & Erens, 2009). The ATGS consists of 14 statements, each expressing an attitude towards gambling, with five response options ranging from strongly agree to strongly disagree. Items are independent of specific policy issues or forms of gambling (e.g., wagering vs. electronic gaming machines). The scale produces a score ranging between 14 and 70; a score of 42 indicates an approximately neutral attitude, scores below 42 indicate progressively negative attitudes, and scores higher than 42 are increasingly favourable. The scale is reported to be high in internal reliability, Cronbach's $\alpha = .88$, with item-total correlations ranging from .43 to .64 (Donaldson et al., 2015; Orford et al., 2009).

Demographics. Recorded demographic items included age, sex, marital status, country of birth, identified nationality, state of residence, education, employment status, personal and family income, and health problems.

Procedure

The online survey was administered with SSI Web V7 by Sawtooth Software. Respondents first completed the 18 recreational gambling (RG) items of the GPSS, followed by the 18 PG items. Randomisation features in SSI Web were used to allocate respondents to alternate forms of the GPSS, as described in the previous section. A total of 682 respondents completed Version 1 of the survey, and a 688 completed Version 2. Those who indicated having gambled during the past 12 months (not including lotteries, scratch tickets, or raffles) then completed the 18 items of the GESS, followed by the CSPG, the PGSI, the ATGS, and demographic items. Participants who indicated not having gambled during the previous 12 months were directed to the ATGS and demographic items, but did not complete the GESS, CSPG, or PGSI.

Results and Discussion

Gambling Perceived Stigma Scale

A number of approaches for determining factor structure exist (Revelle, 2015; Revelle & Rocklin, 1979; Velicer, 1976). Unfortunately, mathematical criteria for deciding which is optimal do not exist, and each method often gives different results. This was true in the present analysis, in which exploratory factory analysis (EFA) using the Very Simple Structure (VSS) Complexity 1 metric suggested that one factor be retained, the VSS Complexity 2 metric suggested two, Velicer's Minimum Average Partial test indicated three, and the Bayesian information criterion suggested eight. The eigenvalue distribution (scree plot), considered with respect to eigenvalues generated from random permutations of the data (parallel analysis) showed two clear factors and a marginal third factor, along with a number of factors only marginally above the random threshold. From this result, we tended towards the interpretation that the data suggested a complex and potentially hierarchical structure, and thus an iterative approach of considering several factor analytic

solutions based on interpretability should be followed. We therefore examined the pattern matrix for various numbers of extracted factors. However, although factor structure was apparent, items within data-driven factors did not usually agree with the proposed six dimensions, and no solution stood out as markedly more interpretable than others.

Identifying Coherent Dimensions of Stigma

An EFA-oriented analysis suggested that there was meaningful covariance structure in the stigma items. However, the structures identified did not necessarily correspond with the hypothesised dimensions, and some items clearly performed poorly. Therefore, we put aside the criteria of identifying a model in the covariance cluster that matched the hypothesised clusters and focused instead on identifying coherent item clusters, without regard to the original intent of the item. Accordingly, we adopted an approach to scale development called ICLUST, which iteratively combines items based on maximising both coefficient alpha (reliability) and coefficient beta (homogeneity). Although not as widely used as EFA, ICLUST has features that can make complex scale development problems far more tractable (Cooksey & Soutar, 2006).

Using this procedure, we identified two groups of items with local maxima of both beta and alpha (Table 1). The first group appeared to be centred on a negative judgement of the personal (psychological) deficits of the gambler and might be labelled “Contempt.” On the basis of the dual subset method for calculating the covariance, this group possessed good properties of alpha (= .89) and beta (= .86).

Table 1

Standardised Loadings (Pattern Matrix) Based Upon the Correlation Matrix for EFA on the GPSS Using All 14 Items

	b_1	b_2	h^2
Most people think gamblers are liars.	.72		.52
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.70		.61
Most people think that gamblers tend to be unreliable.	.83		.72
Most people think gamblers are unable to handle responsibility.	.81		.65
Most people think gamblers are lazy.	.69		.44
Most people think gamblers are greedy.	.59		.31
Most people believe people who gamble have no self-control.	.76		.53
Most people think that gamblers tend to be irresponsible.	.30	.47	.48
Many people would be uncomfortable communicating with a gambler.		.66	.44
Most people think less of a person that gambles.		.72	.53
Most people would not hire a gambler to take care of their children.		.65	.47
Most people would be suspicious of a person if they knew they were a gambler.		.81	.64
Most people would not want to enter into a committed relationship with someone they knew gambled.		.68	.41
Many people would avoid a person who gambles.		.78	.60

Note. $N = 1,423$. $b < .20$ suppressed. EFA = exploratory factor analysis; GPSS = Gambling Perceived Stigma Scale.

The second group, concerned with avoidance and distrust, might be labelled “Ostracism.” This group possessed good properties of alpha ($=.87$) and beta ($=.82$). Items within these two groups were retained and analysed by using polychoric EFA. In sum, the initial pool of 36 items was reduced to 14 items by using the bottom-up ICLUST item clustering procedure. Although the procedure was entirely based on optimising psychometric criteria, subsequent inspection of the items corresponding to item subsets with the best psychometric properties also appeared to show good face validity regarding two stigma-related constructs.

As Table 1 shows, the restricted set of 14 items has a clear two-dimensional factor structure, with good face validity for all items except one: “Most people think that gamblers tend to be irresponsible.” This item, nominally part of the Ostracism cluster, has poor face validity for this construct. It is also the only item that shows a split loading between the two factors. With its removal, all items in both constructs have high face validity. With this item removed (see Table 2), an EFA on the remaining set of items showed strong psychometric properties, with strong homogeneous loadings of items on factors and a low root mean square residual (RMSR) of 0.04. The fit, based on off-diagonal values, is 0.99, and the correlation of scores with factors is .95 and .94 for Contempt and Ostracism, respectively. However, these measures should be understood to be indicative only, as they are subject to positive bias because of being applied post hoc to the same dataset used to determine the item subsets. There is a moderately strong correlation of .65 between the two factors, which strongly suggests that a global stigma score is also meaningful. Accordingly, we proceeded to work with this subset of items, and this latent factor structure, for subsequent analyses.

Table 2

Standardised Loadings (Pattern Matrix) Based Upon the Correlation Matrix for EFA on the GPSS Using 13 Items

	b_1	b_2	h^2
Most people think gamblers are liars.	.70		.52
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.83		.62
Most people think that gamblers tend to be unreliable.	.81		.72
Most people think gamblers are unable to handle responsibility.	.69		.65
Most people think gamblers are lazy.	.58		.44
Most people think gamblers are greedy.	.76		.31
Most people believe people who gamble have no self-control.			.53
Many people would be uncomfortable communicating with a gambler.		.68	.46
Most people think less of a person that gambles.		.71	.52
Most people would not hire a gambler to take care of their children.		.64	.47
Most people would be suspicious of a person if they knew they were a gambler.		.80	.64
Most people would not want to enter into a committed relationship with someone they knew gambled.		.67	.40
Many people would avoid a person who gambles.		.77	.60

Note. $N = 1,423$. $b < .20$ suppressed. EFA = exploratory factor analysis; GPSS = Gambling Perceived Stigma Scale.

Item Response Theoretic Modelling of the Two-Factor Solution

The previous analyses were exploratory and directed at establishing dimensionality and obtaining and verifying items for subdimensions of stigma. It was therefore necessary to use heuristic techniques and algorithms for working with the covariance matrix, defining non-parametric measures of association, accounting for variance due to PG versus RG, and selecting items (ICLUST). Having determined a candidate optimal solution, the next step was to evaluate this solution through a full parametric model. The ideal model should treat the ordinal Likert response parametrically while simultaneously estimating an effect for whether the subject of the item is PG or RG. Modern structural equation modelling (SEM), using ordinal logistic functions for the Likert measures, provides a flexible framework for implementing such a model. Using a diagonally weighted least squares estimator, we were able to define what amounts to an item response theoretic (IRT) graded response model for each of the Likert scale items, assuming two correlated latent factors of Ostracism and Contempt. This model assumes an ordered logit regression model potentially incorporating a unique slope and a set of three intercepts (corresponding to boundaries between each Likert response category) for each response. Additionally, a beta coefficient capturing the effect of the item target (RG/PG) may be incorporated as a predictor of each item individually, or constrained to be equal for one or both latent factors. Finally, item factor loadings may be free to vary, accommodating the heterogeneity of items. Alternatively, they may be fixed to be constant, which assumes homogeneity of item discrimination (i.e., per a Rasch analysis). If this assumption holds, it has strong positive implications in terms of yielding a scale that is designed to be summed across items. Analyses were conducted by using the R statistical programming environment (R Core Team, 2013), and the *lavaan* (for ordinal SEM), *ltm* (IRT), and *psych* (EFA and other psychometric routines) packages.

Table 3 summarises the beta coefficients and variances of a SEM model with differential item factor loadings, differential coefficients for the effect of RG/PG, and variable item thresholds. The model was a good fit to the data, with standardised root mean square residual (SRMR) = .039, root mean square error of approximation (RMSEA) = .055, and comparative fit index (CFI) = .993. The item factor loadings are homogeneous at about 1, which reflects the criteria upon which the items were selected. For the most part, the effect of RG/PG was also relatively homogeneous across items, except for one: “Most people think gamblers are greedy.” That is, although attitudes towards problem gamblers were generally uniformly more negative than those towards recreational gamblers, respondents did not feel that problem gamblers were greedier than recreational gamblers. The response level thresholds for the items varied somewhat, suggesting that, to some degree, the items probed differential degrees of stigma. Correlation between the latent factors with this framework was .328, slightly less than in the prior analysis.

The results from the initial SEM model suggested a simpler IRT model was plausible, in which item factor loadings were constrained to be homogeneous and a

Table 3
Beta Coefficients and Variances of SEM of GPSS Items: Item Factor Loadings, Differential Coefficients for the Effect of RG/PG, and Variable Item Thresholds

	Loadings			Regression Response (PG vs. RG target)			Thresholds			Variances	
	Est.	SE	z	Est.	SE	z	1.	2.	3.	Est.	SE
Contempt (Factor 1)											
Most people think gamblers are liars.	1.00			.54**	.06	-9.36	-1.82**	-.61**	.81**	.54	.02
Once they know a person is a gambler, most people will take his or her opinion less seriously.	1.12**	.03	45.32	.40**	.06	-6.90	-1.72**	-.42**	1.14**	.46	
Most people think that gamblers tend to be unreliable.	1.19**	.03	47.37	.43**	.06	-7.33	-1.88**	-.81**	-.81**	.33	
Most people think gamblers are unable to handle responsibility.	1.09**	.02	44.69	.45**	.06	-7.67	-1.78**	-.44**	-.97**	.24	
Most people think gamblers are lazy.	.93**	.03	35.14	.28**	.06	-4.72	-1.09**	.53**	1.74**	.37	
Most people think gamblers are greedy.	.76**	.03	26.00	.01	.06	-1.7	-.96**	.51**	1.71**	.54	
Most people believe people who gamble have no self-control.	.96**	.02	39.54	.32**	.06	-5.40	-1.91**	-.88**	.72**	.69	
Ostracism (Factor 2)										.51	.03
Many people would be uncomfortable communicating with a gambler.	1.00			.34**	.06	5.86	-.76**	.84**	2.38**	.49	
Most people think less of a person that gambles.	1.03**	.03	32.17	.32**	.06	5.50	-1.13**	0.12	1.78**	.51	
Most people would not hire a gambler to take care of their children.	1.01**	.03	30.19	.24**	.06	4.20	-1.05**	.31**	1.60**	.48	
Most people would be suspicious of a person if they knew they were a gambler.	1.15**	.03	34.34	.28**	.06	4.81	-1.30**	-.08	1.58**	.50	
Most people would not want to enter into a committed relationship with someone they knew gambled.	.90**	.04	25.31	.46**	.06	7.57	-1.27**	-.011	1.34	.35	
Many people would avoid a person who gambles.	1.11**	.03	33.17	.47**	.06	8.00	-.92**	.61**	2.09**	.60	
										.39	

Note. $N = 1,423$. SEM = structural equation modelling; GPSS = Gambling Perceived Stigma Scale; RG = recreational gambling; PG = problem gambling
* $p < .01$, ** $p < .001$.

single beta coefficient was specified for the effect of the RG/PG item target, with the exception of the “greedy” item, in which the effect of RG/PG was assumed to be zero. The imposition of these assumptions led to a significant decrease in fit. However, more meaningful fit measures deteriorated only moderately: SRMR = .071, RMSEA = .094, and CFI = .971. Over 50% of variance in items in both scales was explained by the latent scores in the more constrained model. The global beta coefficient for RG/PG was 0.344, which may be interpreted as an odds ratio in much the same way as binary logistic regression. For any division of the categories of Likert item responses, the odds of making a higher response were 1.41 times greater than a lower response if the target of the probe was PG, rather than RG. Given the Likert response categories, this might be characterised as a moderately large effect, signifying significantly greater perceived stigma towards problem gamblers than recreational gamblers.

From these analyses, we concluded that the two scales had satisfactory psychometric properties and were suitable for summation and further analysis as aggregate scales. However, from the merely moderate correlation and the conceptual differences between the two factors, one could argue as to whether it is meaningful to combine them in a single global stigma scale. Nevertheless, for the combined scale, Cronbach’s alpha was .87, and worst split-half reliability (beta) was .67. The discrepancy between these coefficients reflects the bi-dimensionality of the derived scale. The high Cronbach’s alpha indicates that the global stigma scale is a reliable instrument. Table 4 summarises the item statistics and item reliability metrics for the combined scale. Each item had a satisfactory and similar correlation with the total scale. In Table 4, the scale statistics if the item was removed also show that no clearly underperforming items exist with respect to the total scale. However, it is likely that a briefer version of the scale could be generated by successively dropping items until the reliability coefficient dropped markedly. Table 5 summarises the base response frequencies for each of the items in the final scale. It illustrates the variation response thresholds for the scale items, with some items reflecting lower levels of the attitudinal dimension and others reflecting higher levels.

Item information curves were generated for each of the scales, confirming the numerical results that indicated only moderate variability in the location parameter information for items within scales. That is, there tended to be no items that provided information only at the extreme end of the latent response; all items tended to provide information throughout the typical range of variation for the response.

Gambling Experienced Stigma Scale (GESS)

Initial development of the GESS. The goal was to reduce the 18 candidate questions into a limited set of items that described one or more dimensions of stigma experienced in relation to one’s own gambling. We followed a similar series of steps to refine the GESS regarding one’s own experience related to gambling stigma. The task was substantially simplified by the fact that there were no complexities with respect to whether RG versus PG was the target. However, fewer data were available

Table 4
Item Statistics and Item Reliability Metrics for the Combined GPSS

	Item Statistics				Scale Statistics if Item Removed					
	<i>r</i>	<i>r</i> (<i>cor</i>)	<i>r</i> (<i>drop</i>)	<i>M</i>	<i>SD</i>	<i>a</i>	<i>SE</i>	G6 (smc)	<i>r</i> (<i>ave</i>)	S/N
Most people think gamblers are liars.	.64	.61	.57	2.3	.82	.86	.01	.88	0.34	6.3
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.70	.69	.64	2.3	.77	.86	.01	.87	0.34	6.1
Most people think that gamblers tend to be unreliable.	.72	.71	.66	2.5	.79	.86	.01	.87	0.33	6.0
Most people think gamblers are unable to handle responsibility.	.69	.67	.63	2.3	.78	.86	.01	.87	0.34	6.1
Most people think gamblers are lazy.	.60	.56	.52	1.9	.69	.87	.01	.88	0.35	6.4
Most people think gamblers are greedy.	.53	.47	.43	2.1	.74	.87	.01	.88	0.36	6.7
Most people believe people who gamble have no selfcontrol.	.63	.59	.55	2.7	.78	.86	.01	.88	0.35	6.3
Many people would be uncomfortable communicating with a gambler.	.60	.55	.51	2.3	.70	.87	.01	.88	0.35	6.4
Most people think less of a person that gambles.	.61	.57	.52	2.7	.73	.86	.01	.88	0.35	6.4
Most people would not hire a gambler to take care of their children.	.62	.58	.53	2.5	.79	.86	.01	.88	0.35	6.4
Most people would be suspicious of a person if they knew they were a gambler.	.66	.63	.58	2.8	.72	.86	.01	.88	0.34	6.2
Most people would not want to enter into a committedrelationship with someone they knew gambled.	.53	.48	.43	3.0	.76	.87	.01	.88	0.36	6.7
Many people would avoid a person who gambles.	.64	.64	.55	2.6	.73	.86	.01	.88	0.34	6.3

Note. $N = 14$. GPSS = Gambling Perceived Stigma Scale. $r(cor)$ = item whole correlation corrected for item overlap and scale reliability. $r(drop)$ = Item whole correlation for this item against the scale without this item. $r(ave)$ = the average inter-item correlation if item is removed.

Table 5
Subscale Summary Statistics and Response Proportions for Each Item of the GPSS

	Min.	Max.	1 st Quartile	3 rd Quartile	M	Med.	SD
Ostracism (PG)	1	4	2.5	3	2.77	2.83	.50
Ostracism (RG)	1	4	2.17	2.83	2.44	2.50	.53
Contempt (PG)	1	4	2.14	2.71	2.44	2.43	.53
Contempt (RG)	1	4	1.86	2.57	2.19	2.29	.58

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
Most people think gamblers are liars.	.17	.41	.36	.06
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.14	.43	.38	.04
Most people think that gamblers tend to be unreliable.	.11	.32	.49	.08
Most people think gamblers are unable to handle responsibility.	.14	.45	.36	.05
Most people think gamblers are lazy.	.25	.57	.16	.02
Most people think gamblers are greedy.	.21	.54	.22	.03
Most people believe people who gamble have no self-control.	.08	.27	.54	.12
Many people would be uncomfortable communicating with a gambler.	.10	.52	.34	.03
Most people think less of a person that gambles.	.06	.30	.54	.10
Most people would not hire a gambler to take care of their children.	.08	.40	.41	.11
Most people would be suspicious of a person if they knew they were a gambler.	.04	.27	.56	.13
Most people would not want to enter into a committed relationship with someone they knew gambled.	.03	.19	.52	.26
Many people would avoid a person who gambles.	.06	.41	.45	.09

Note. N = 1,423. GPSS = Gambling Perceived Stigma Scale; RG = recreational gambling; PG = problem gambling; Min. = minimum; Max. = maximum; Med. = median; S/W = somewhat.

to test the scale because the information available for psychometric development was limited to those who did gamble and indicated a positive degree of own-gambling stigma. A total of 403 cases fulfilled these criteria. Of the Likert scale responses in the 403×18 item responses, 63% were the minimum value, which gives an indication of the low means and positive skew observed for the items. The 403 person subsample included 306 recreational, 48 low-risk, 37 medium-risk, and 12 problem gamblers. The high preponderance of minimum responses can be expected to lead to a reduction in the available information to perform scale development. We conducted analyses that handled the skewed/ordinal data distribution by using polychoric correlations; nevertheless, the reduction of effective power due to positive skew should be kept in mind.

A parallel analysis suggested that there were five potential factors, but a more reasonable interpretation was that the data were strongly unidimensional, with a possible secondary factor. Use of the ICLUST algorithm identified a number of poorly performing items and two potential clusters of reliable items. However, we note that the combination of these two clusters reduces the coefficient beta only slightly, which tends to argue for a one-cluster (one-dimensional) solution. Accordingly, we eliminated the non-performing items and ran a polychoric factor analysis by using items from the two tentative clusters. The results of the EFA are shown in Table 6. All items load strongly on a single global Experienced-Stigma factor. The model is an extremely good fit to the data, with an RMSR of 0.01, Tucker-Lewis Index of .922, and multiple R^2 of .98. However, keeping the relative lack of information in the available dataset in mind, these results should be treated with caution. It is interesting to note that each of the items that load on the second oblique factor is related to social judgements or interactions with others. Our conclusion, therefore, is that experienced stigma is primarily measurable as a unidimensional construct. In addition, a briefer version of the self-stigma scale will probably perform almost as well, in terms of reliability, as the larger set of items provided in Table 6. Finally, four items appear to specifically tap a form of “felt social stigma,” which is nevertheless highly related to the global self-stigma construct. This raises the further option of selecting a scale that is solely based on “introspective stigma,” with no social element, by avoiding the inclusion of these items. It must be emphasised that our conclusions regarding the psychometric properties of the self-stigma scale remain tentative because of the data limitations of the available sample. Future development needs to rely on either a much larger general population study, or be targeted towards heavy or problematic gamblers.

Correlation and regressions using derived scales. To finalise the evaluation of the derived scales, we considered their relationships with other variables, including demographics, gambling activity, and problem indicators, as well as general attitudes towards gambling. Table 7 summarises the bivariate correlations between the variables for the full sample, excluding experienced stigma. Given that felt stigma towards one’s own gambling is relevant only for those who gamble, we also provide Table 8, which computes the correlations only for those participants who reported having gambled in the previous 12 months.

Table 6
Standardised Loadings (Pattern Matrix) of EFA on the GESS Self-Stigma Items

	b_1	b_2	h^2
I feel the need to hide my gambling from my friends.	.91	.23	.92
I sometimes have the thought that I've screwed up my life by gambling.	.91	.24	.93
Most people would always suspect that I had returned to gambling, even if I didn't gamble anymore.	.93	.22	.95
People have insulted me because of my gambling.	.91		.90
I have the thought that I should be ashamed of myself for my gambling.	.97		.93
People can tell that I am a gambler by the way I look.	.86		.75
Others think I am not worth the investment of time and resources because I am a gambler.	.95		.89
I sometimes have the thought that I deserve the bad things that have happened to me in life because I gamble.	.94		.88
I feel the stress in my life is what causes me to gamble.	.93		.86
Others view me as morally weak because I am a gambler.	.96		.91
I avoid situations where another person might have to depend on me.	.96		.91
I don't think I can be trusted because I gamble.	.96		.91
Once they know I'm a gambler, most people will take my opinion less seriously.	.97		.93

Note. $N = 403$. $b < .20$ suppressed. EFA = exploratory factor analysis; GESS = Gambling Experienced Stigma Scale.

Table 9 summarises a multiple regression that predicts the mean Contempt and Ostracism scores by using all available variables. Those who gambled and those who gambled more (CSPG) had less contempt for (problem) gamblers. Although it falls just short of the .05 significance threshold, it is of theoretical importance that PGSI scores were positively related to contempt when we controlled for gambling activity.

Table 7
Bivariate Correlations Between Each of the Aggregated Variables for the Full Sample (Excluding GESS)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Age	1	PS	PS	P	P	P	P	P
2. Gender (F)	-.19***	1	PC	PS	PS	PS	PS	PS
3. Gamble	-.01	-.16***	1	PS	PS	PS	PS	PS
4. Contempt	-.01	.03	-.16***	1	P	P	P	P
5. Ostracism	.05	.11***	-.18***	.46***	1	P	P	P
6. ATGS	-.05	-.02	-.05	-.03	-.02	1	P	P
7. PGSI	-.01	-.12***	.57***	-.02	-.04	-.06*	1	P
8. CSPG	.06*	-.15***	.69***	-.09**	-.10***	-.01	.60***	1

Note. $N = 1,423$. GESS = Gambling Experienced Stigma Scale; F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling; P = Pearson; PS = polyserial; PC = polychoric.

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

Table 8

Bivariate Correlations Between Each of the Aggregated Variables for the Full Sample (Including Only Participants Who Gamble)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Age	1	PS	P	P	P	P	P	P
2. Gender (F)	-.22***	1	PS	PS	PS	PS	PS	PS
3. Stigma – own	-.11*	-.08	1	P	P	P	P	P
4. Contempt	-.04	.03	.16***	1	P	P	P	P
5. Ostracism	.02	.13**	.02	.43***	1	P	P	P
6. ATGS	-.08	.04	-.03	-.11	-.03	1	P	P
7. PGSI	-.02	-.15**	.30***	.03	.01	-.10*	1	P
8. CSPG	.13**	-.18***	.07	-.06	-.06	.03	.55***	1

Note. $N = 447$. F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling; P = Pearson; PS = polyserial; PC = polychoric.

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

As found previously, attitudes were more negative towards problem gamblers than they were towards recreational gamblers.

Table 9 also shows a similar regression analysis for the Ostracism subscale. Older people and females tended to score more highly on this measure. Once again, those who did not gamble tended to have lower scores, and attitudes were more positive towards recreational than they were towards problem gamblers. Regression analysis of the Experienced Stigma scale was slightly more complicated because of the severe positive skew in the data. Therefore, average experienced stigma scores were rounded to the nearest Likert response [1-4] and analysed by using ordinal logistic regression. The results are summarised in Table 10. The results show that, among gamblers, PGSI scores were positively related to experienced stigma, whereas CSPG scores were negatively related to experienced stigma. Further, age but not gender was negatively related to experienced stigma. The opposite effects of PGSI and CSPG must be interpreted with reference to the fact that these variables are strongly correlated. The correct interpretation is that those gamblers who report gambling more heavily, without admitting to gambling problems, tend to have fewer experiences of stigma.

General Discussion

The present study, to our knowledge, is the first to undertake the construction and validation of both perceived and experienced stigma scales specific to gambling. The clear delineation between experienced and perceived stigma was evident during analysis. Consequently, the GPSS and the GESS were validated independently. Both scales indicated strong psychometric properties, although further validation with a larger sample of people who gamble heavily or experience problems with gambling is recommended for the GESS. Analysis of the GPSS indicated a strong two-factor model of perceived stigma with dimensions of Contempt and Ostracism, the items

Table 9

Multiple Regression Predicting the Mean GPSS Contempt and Ostracism Subscale Scores Using All Available Variables

	<i>b</i>	<i>SE</i>	<i>t</i>
Contempt			
Age	-.01	.01	-0.43
Gender (F)	.01	.03	0.22
Gamble	-.12	.04	-3.25**
ATGS	-.01	.06	-1.60
PGSI	.22	.12	1.74
CSPG	-.08	.04	-2.09*
Target (RG vs. PG)	.24	.03	-8.34***
Ostracism			
Age	.03	.01	2.62**
Gender (F)	.09	.03	3.18**
Gamble	-.15	.04	-4.20***
ATGS	-.00	.05	-0.05
PGSI	.14	.12	1.14
CSPG	-.06	.04	1.58
Target (RG vs. PG)	.24	.03	-8.61***

Note. *N* = 1,423. GPSS = Gambling Perceived Stigma Scale; F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling; RG = recreational gambling; PG = problem gambling.

p* < .05, *p* < .01, ****p* < .001.

mapping onto each dimension having strong face validity. Moderate correlations suggest that the use of these subscales may be more meaningful than a global Perceived Stigma scale. Analysis of the GESS suggested a single unidimensional Experienced Stigma scale and both scales discriminate well between stigma held towards RG and PG targets. The GPSS and GESS are presented as Appendices B and C, respectively.

Table 10

Ordinal Logistic Regression Beta Coefficients Predicting Self-Stigma GESS Scores for Those Who Gambled

	<i>b</i>	<i>SE</i>	<i>t</i>
Age	-.20	.09	-2.18*
Gender (F)	-.15	.23	0.63
ATGS	-.11	.46	-0.23
PGSI	2.75	.52	5.31***
CSPG	-.41	.19	-2.19*

Note. *N* = 403. GESS = Gambling Experienced Stigma Scale; F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling.

p* < .05, **p* < .001.

Although analysis of the factor structure did not support the six-dimension stigma framework adopted from E. E. Jones et al. (1984), the identified dimensions of Contempt and Ostracism align closely with the Jones framework, particularly in the areas of peril and aesthetics. Of importance is that these dimensions are also consistent with the literature that examines stigma by using measures such as desire for social distance (e.g., Angermeyer & Matschinger, 2003). Thus, although a six-dimension model of stigma does not appear to be the most efficient framework within which to assess gambling-related stigma, a theoretical examination derived from this foundation is relevant to the understanding of the origin of gambling-related stigma.

The useful delineation of experienced and perceived stigma offers a means to approach and address the potential impact of stigma in the lives of those experiencing gambling problems. Although stigma is known to be linked with reduced likelihood of accessing treatment, little is known about how stigma in RG and PG differentially affects treatment seeking. The scales reported here provide the methods and tools to address this issue. In addition, the scales provide practitioners, health care workers, treatment providers, and policy makers with tools that may usefully inform awareness and understanding of both experienced and perceived stigma by those who gamble. The generalisability of the perceived and experienced stigma scales will depend on their successful dissemination and use in the community, as well as on the ability of researchers and practitioners to increase awareness of the processes of stigma involved in gambling.

Future Research Issues

Although the psychometric properties of the Experienced Stigma scale suggest a strong unidimensional global scale, it is important to acknowledge that only a limited proportion of the sample self-identified as regular or recent gamblers and thus caution should be used in interpreting the results. Further development of the GESS should seek to include a larger population sample or purposeful sampling of people with high levels of consumption of gambling products or who experience problems with gambling. It is likely that the scale may be further reduced with additional validation.

In addition, the finding of negative attitudes to gambling and self-stigma experienced among those participants who gamble should be investigated further. Although this finding is consistent with previous studies (Donaldson et al., 2015; Orford et al., 2009; Salonen et al., 2014), the paradoxical relationship between observed attitudes towards gambling and engagement in gambling activities remains to be comprehensively explored. This relationship is important in understanding the nature and origin of this stigma, as well as the potential associated harm, and suggests that beyond any self-recrimination due to the over-investment of time or money in gambling, judgements are made about the nature of the activity compared with other recreational pursuits.

Conclusions

These scales offer utility in terms of the measurement of stigma related to gambling and its impact as a potential barrier to treatment for those who experience gambling problems. In addition, the scales allow assessment of the impact of stigma on the conduct of research into gambling, as well as measurement of the effectiveness of efforts to reduce gambling-related stigma. The findings of this study provide a broad and rigorous platform on which to base future scale validation and application.

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Appendix A
Stigma Measurement Scales Identified From the Literature Review

Scale name	Condition(s) measured by scale	Measures of perceived stigma	Measures of internalized stigma	Other items measured	Psychometric properties reported	Studies reporting measure
Discrimination, alienation, perceived devaluation, and coping – scale not named	Illicit drug use	3 items	3 items	Discrimination, coping behaviour	Yes, in same article	Ahern et al. (2007)
The Self-Stigma of Depression Scale (SSDS)	Depression	-	16 items	-	Yes, in same article	Barney et al. (2010)
Perceived Devaluation and Discrimination (PDD)	Mental illness, depression, gambling, substance abuse, alcohol abuse, smoking	12 items	-	-	Yes, in other articles	Björkman et al. (2007); Brown et al. (2010); Horch (2011); Link (1987); Link, Mirotznik, and Cullen (1991); Luoma, O'Hair, Kohlenberg, Hayes, and Fletcher (2010); Palamar et al. (2012); Reynolds, Lehman, and Bennett (2008); Stuber, Galea, and Link (2008)
Social Distance Scale (SDS)	Asperger's disorder, mental illness, gambling	-	-	Desired social distance	Yes, in other articles	Butler and Gillis (2011); Feldman and Crandall (2007); Horch (2011); Norman et al. (2012)
Day's Mental Illness Stigma Scale	Mental illness	27 items	-	1 item: professional efficacy	Yes, in same article	Day, Edgren, and Eshleman (2007)
Stigma and attitudes towards antenatal depression in health care – scale not named	Antenatal depression	-	-	Fear, stigma, nervousness, willingness to care for, social distance	Yes, in same article	Gawley, Einarson, and Bowen (2011)

Appendix A. Continued.

Scale name	Condition(s) measured by scale	Measures of perceived stigma	Measures of internalized stigma	Other items measured	Psychometric properties reported	Studies reporting measure
Attribution Questionnaire (AQ)	Gambling	-	-	Behavioural attributions towards stigmatised conditions	Yes, in other article	Horch (2011)
Self-Stigma of Mental Illness Scale (SSMIS)	Gambling	-	30 items	-	Yes, in other article	Horch (2011)
Stigma-related Interpersonal Rejection (SRIR)	Gambling	-	-	9 items: discrimination	Yes, in other article	Horch (2011)
Depression Self-Stigma Scale (DSSS)	Depression	4 items	18 items	6 items: discrimination, 4 items: treatment stigma	Yes, in same article	Kanter et al. (2008)
Mental Illness Clinicians Attitudes (MICA) Scale	Mental illness	-	-	Clinicians' attitudes towards mental illness	Yes, in same article	Kassam, Glozier, Leese, Henderson, and Thornicroft (2010)
Opening Minds Scale for Health Care Providers (OMS-HC)	Mental illness	-	-	Clinicians' attitudes towards mental illness	Yes, in same article	Kassam, Papish, Modgill, and Patten (2012)
The Stigma Scale (SS)	Mental illness	-	11 items	12 items: discrimination	Yes, in same article	King et al. (2007)
Coping Orientations: Secrecy, Avoidance- withdrawal and Education – scale not named	Mental illness	4 items: secrecy	1 item: secrecy, 7 items: withdrawal	5 items: education of others	Yes, in same article: coping efforts increased stigma	Link et al. (1991)

Appendix A. Continued.

Scale name	Condition(s) measured by scale	Measures of perceived stigma	Measures of internalized stigma	Other items measured	Psychometric properties reported	Studies reporting measure
Substance Abuse Self-Stigma Scale (SASSS)	Substance abuse	-	8 items: self-devaluation, 9 items: discrimination, 13 items: avoidance, 10 items: values disengagement	-	Yes, in same article	Luoma et al. (2013)
Internalised Stigma of Mental Illness (ISMI)	Mental illness	-	19 items	5 items: discrimination, 5 items: stigma resistance	Yes, in same and other articles	Brown et al. (2010); Ritsher, Otilingam, and Grajales (2003); Sibitz, Unger, Woppmann, Zidek, and Amering, (2011)
Self-Stigma of Seeking Help (SSOSH) scale	Mental illness	-	10 items: treatment-seeking stigma	-	Yes, in same article	Vogel, Wade, and Haake (2006)

Appendix B

Gambling Perceived Stigma Scale (GPSS)

We are interested in your thoughts about people who gamble. For each of the following statements, please consider how you think people who gamble are generally perceived by others.

Important: When you think about gambling DO NOT include lottery tickets, instant scratch tickets or raffles, but DO include all other types of gambling such as poker machines, card games, racing, sports betting, day trading, bingo and casino games.

[For each item, substitute Recreational / Problem gambling target as required]

Strongly Disagree (1) Somewhat Disagree (2) Somewhat Agree (3) Strongly Agree (4)

Contempt Subscale

1. Most people think [gamblers / problem gamblers] are liars
2. Once they know a person is a [gambler / problem gambler], most people will take his or her opinion less seriously
3. Most people think that [gamblers / problem gamblers] tend to be unreliable
4. Most people think that [gamblers / problem gamblers] are unable to handle responsibility
5. Most people think that [gamblers / problem gamblers] are lazy
6. Most people think that [gamblers / problem gamblers] are greedy
7. Most people believe that [people who gamble / problem gamblers] have no self-control

Ostracism Subscale

8. Many people would be uncomfortable communicating with a [gambler / problem gambler]
9. Most people think less of a [person who gambles / problem gambler]
10. Most people would not hire a [gambler / problem gambler] to take care of their children
11. Most people would be suspicious of a person if they knew they were a [gambler / problem gambler]
12. Most people would not want to enter into a committed relationship with someone they knew [gambled / had a gambling problem]
13. Many people would avoid a person who [gambles / had a gambling problem]

Appendix C

Gambling Experienced Stigma Scale (GESS)

We are interested in your thoughts about your own gambling experiences. Please indicate how much you agree with each of the following statements.

Important: When you think about gambling **DO NOT** include lottery tickets, instant scratch tickets or raffles, but **DO** include all other types of gambling such as poker machines, card games, racing, sports betting, day trading, bingo and casino games.

Strongly Disagree (1) Somewhat Disagree (2) Somewhat Agree (3) Strongly Agree (4)

1. I feel the need to hide my gambling from my friends
2. I sometimes have the thought that I've screwed up my life by gambling
3. Most people would always suspect that I'd returned to gambling, even if I didn't gamble anymore
4. People have insulted me because of my gambling
5. I have the thought that I should be ashamed of myself for my gambling
6. People can tell that I am a gambler by the way I look
7. Others think I am not worth the investment of time and resources because I am a gambler
8. I sometimes have the thought that I deserve the bad things that have happened to me in life because I gamble
9. I feel the stress in my life is what causes me to gamble
10. Others view me as morally weak because I am a gambler
11. I avoid situations where another person might have to depend on me
12. I don't think I can be trusted because I gamble
13. Once they know I'm a gambler, most people will take my opinion less seriously

In memoriam

A Tribute to Dr. Phillip Donaldson
Passed away April 4, 2015

Dr. Phillip Donaldson received a PhD in cognitive psychology from Flinders University in 2010. His research interests in spatial cognition, attention, and visual perception, along with his passion for experimental design, were well suited to research in the areas of gambling and online gaming behaviour. Phill had established himself as a gifted early career researcher in the gambling field, having contributed as a founding member of CQUniversity's Experimental Gambling Research Laboratory. His contributions included work on the impact of EGM jackpots on gambling behaviour, pre-commitment features, gambling environments, innovation in gambling products, and the measurement of gambling-related harm. He was chief investigator on the project that developed the scale to measure gambling-related stigma. In addition to being a talented early career researcher, Phill was a gifted lecturer, having won multiple awards for teaching innovation and quality.

book review

All bets are off: Losers, liars, and recovery from gambling addiction

Wexler, A., & Wexler, S., with Jacobson, S. (contributor). (2015). Las Vegas, NV: Central Recovery Press. ISBN 978-1937612757.

Reviewed by: Peter Ferentzy, Ph.D., The Centre for Addiction and Mental Health

Rarely does a reader come across a text where integrity oozes out from between each line. That is always a treat, and Arnie and Sheila Wexler's book is one of those. Perhaps this should not be surprising—after all, Arnie brings to the table a half-century of personal and professional experience in recovery from problem gambling (PG). In fact, as a PG scholar who has communicated with Arnie in depth over the years, I can make a claim that few in the field would disagree with: No human being has devoted more time and sweat to this cause than Arnie Wexler. The one exception, perhaps, would be his co-author and wife, Sheila Wexler. I would also be remiss if I didn't mention Steve Jacobson, contributor, who assembled their narratives into a cohesive, beautifully written story—one in which many problem gamblers and their loved ones will recognize their own lives and struggles.

The authors use the designation “compulsive gambling” when discussing PG, which is favored by Gamblers Anonymous (GA), though generally in disuse by the scientific community. So what? “Compulsive” is just as good a word as “pathological,” “disordered,” or “problem.” Arnie is old school, and even though I disagree with him on many points (sometimes I think that Arnie and I disagree about everything), there is nothing wrong with old-school lingo, or even an old-school approach, so long as other options are present.

Arnie is an old-school gambler and an old-school tough guy, and it shows, even as he challenges ideas such as that drugs and alcohol are more dangerous than gambling. Of course, Arnie was in the game when most people thought just that, despite having a decent grasp on alcoholism and drug addiction. On page 1, Arnie lets you in on how he sees it (and how he sees himself): “I always knew I was going to be a compulsive something or other.” Yes, had the dice rolled just a little differently, maybe Arnie would be recovering from crack and booze (like this reviewer), and maybe this reviewer would have a history of compulsive gambling. No one can say for sure, and Arnie understands that truth with as much clarity as any researcher with whom I have worked.

The book is laden with sophisticated takes on complex issues (e.g., Arnie comes out as an agnostic with respect to PG etiology) and some really glaring generalizations (e.g., the “mindset” of the compulsive gambler is discussed with sweeping statements). So, on the one hand, Arnie understands how difficult it is to pin down causation and that, even if it were possible, the account would vary from one person to the next. On the other hand, he often claims that all compulsive gamblers think this way and that way. Even if many of these generalizations were true in the vast majority of cases, they could never apply to each and every one.

Let us recall, though, that the book is more experiential than scientific. Arnie often makes personal statements, and with full regard for how they are personal. So even though gamblers—according to 12-Step lore—are said to dream about yachts and such, Arnie apparently was an exception to that rule: “Most people who buy those \$100 million lottery tickets enjoy a few moments daydreaming about what they’d do if they won: pay off the mortgage, buy a new house, a new car.... Not me. Nope. I just thought of paying off gambling debts and having some money left over to bet even more. That was *my* fantasy” (p. 8).

As gamblers go, Arnie was as pure as they come: “when I had a good day betting, I was so high I didn’t need sex” (p. 31). Sheila concurs: “Arnie wasn’t interested in making love” (p. 37). Later, she elaborates on this singular drive: “Over the years, I learned to understand the grip his addiction had on him. Even when he knew he was going to lose, he had to make a bet” (p. 40). After Arnie stopped gambling, so ended the high, and the book covers the struggles he encountered during those early years of his recovery, especially the depression. For his wife, the greatest struggle appears to have been finding the strength to forgive her husband. The two perspectives play off each other throughout the entire book, generating a dynamic that made me feel like I was a part of their reality.

Even after decades in recovery, Arnie explains how he is still an addict and therefore must always be vigilant. To illustrate, he tells the story about a time he was playing golf, and was surprised by a sign that greeted him at the second hole, advertising that a hole-in-one would win him a car. “I was shaking like a leaf as I addressed the ball. I was afraid to take a swing. I ‘accidentally’ knocked the ball off the tee, so...I was shooting for a hole in two.... I was safe” (p. 104).

This book will walk you through the world of GA in all its specificity, vis-à-vis other 12-Step programs. For example, in Alcoholics Anonymous, the fourth step involves taking a moral inventory, but in GA one needs to do a moral and financial inventory (p. 102). Arnie is not entirely uncritical of the 12-Step model, however, and freely expresses his disdain for the anonymity insisted upon by the fellowship. That statement, in itself, amounts to heresy in the 12-Step world, but Arnie feels strongly that disclosure is essential: Gamblers should stop hiding.

That’s what Arnie thinks, and he says what he thinks.