Journal of Gambling Studies (2019) 35:1015–1034
https://doi.org/10.1007/s10899-019-09826-3

ORIGINAL PAPER

Til Debt Do Us Part: Comparing Gambling Harms Between Gamblers and Their Spouses

Lisa Jeffrey[1] · Matthew Browne[1] · Vijay Rawat[2] · Erika Langham[3] · En Li[4] · Matthew Rockloff[1]

Published online: 30 January 2019

Abstract
This study compared the experience of gambling related harms between gamblers and spouses, whilst taking into account gender and problem gambling severity. Participants ($N = 5036$, 2603 females) from Australia and New Zealand completed a retrospective survey that probed the prevalence of specific harms from gambling within six harm domains (financial, work/study, health, emotional/psychological, relationship, and social deviance). Overall there was a similar count of total harms reported across all domains experienced by spouses (vs gamblers), however the types and patterns of harms reported were markedly different. Spouses reported the highest number of harms within the emotional/psychological and relationship domains, whereas gamblers experienced a higher number of harms in all other domains. Spouses were five to six times more likely to report increased conflict in their relationship due to gambling, greater relationship tension, and ending a relationship. In comparison, gamblers reported more severe health-related harms, such as suicide attempts and increased alcohol consumption. The findings highlight the unique ways in which gamblers and their spouses each respond to the presence of gambling problems.

Keywords Gambling harms · Gamblers · Gambling problems · Concerned significant others · Spouses · Gender

Introduction

Participation in gambling can negatively affect not only gamblers themselves, but also their concerned significant others (CSOs) (Kourgiantakis et al. 2013; Langham et al. 2016). In particular, spouses are the most likely group to be significantly impacted by gambling (Kalischuk et al. 2007). The transmission of harm from the person who gambles to family

✉ Vijay Rawat
v.rawat@cqu.edu.au

[1] School of Health, Medical and Applied Sciences, CQUniversity, Bundaberg, QLD, Australia

[2] School of Health, Medical and Applied Sciences, CQUniversity, Melbourne, VIC, Australia

[3] School of Health, Medical and Applied Sciences, CQUniversity, Cairns, QLD, Australia

[4] School of Business and Law, CQUniversity, Rockhampton, QLD, Australia

members, including spouses, occurs within a psychological, social, familial, and cultural context (Kalischuk 2010) with the harm affecting multiple domains of life (e.g. health, finances, emotions, relationships) (Langham et al. 2016). The transmission of harm is affected by the familial roles, relationships between individuals, and relationship to the problematic behaviour (Kalischuk 2010). This strongly suggests that the extent and nature of harm may differ between the person who gambles and their spouse, nevertheless little quantitative research has examined this question directly.

Spouses' Experiences of Gambling Related Harm

Financial Harms

Financial harms experienced by spouses are commonly identified qualitatively in the literature; most notably, loss of savings, indebtedness, and creditor issues (Dickson-Swift et al. 2005; Ferland et al. 2008; Kalischuk 2010; Langham et al. 2016; Mathews and Volberg 2013). In some cases, families experience significant financial loss; including losing their place of residence, and being unable to afford daily living expenses (Dickson-Swift et al. 2005; Langham et al. 2016; Mathews and Volberg 2013). When experiencing these financial harms, spouses sometimes have to assume new roles in the family unit, such as taking control of finances (Mathews and Volberg 2013).

Health Harms

Spouses' health-related gambling harms are widely reported in the literature, and often found to be primarily psychosomatic in nature; caused by exhaustion and stress (Kourgiantakis et al. 2013; Langham et al. 2016; Mathews and Volberg 2013). Reported physical effects include stomach issues, headaches, breathing difficulties, faintness, backaches, insomnia, panic attacks, high blood pressure and asthma; particularly among female spouses of problem gamblers (Dickson-Swift et al. 2005; Patford 2009). Spouses are believed to experience less severe physical harm than the gambler themselves, although this has not been established empirically (Kourgiantakis et al. 2013). Gamblers are more likely to exhibit comorbidities such as alcohol and substance-abuse, which may increase physical harm (Browne et al. 2016).

Emotional/Psychological Harms

Female spouses of gamblers have been found to be particularly vulnerable to a number of emotional harms, including: high distress levels, fear, guilt, anger, shame, safety concerns, uncertainty and despair (Dickson-Swift et al. 2005; Mathews and Volberg 2013; Patford 2009). As a result of such negative emotive states, spouses of people with problems with gambling can also experience suicidal ideation, commit acts of self-harm, and attempt or complete suicide (Dickson-Swift et al. 2005).

Relationship Harms

Relationship harms are also commonly reported, both for the person who gambled and the spouse, and often precipitate help seeking (Gainsbury et al. 2013; Hing et al. 2013; Langham et al. 2016). Relationship harms can stem from issues around time spent gambling and

loss-of-trust, and range from disruption in the relationship to conflict, as well as potential relationship-breakdown (Langham et al. 2016) and separation (Dickson-Swift et al. 2005). Deteriorating relationships exacerbate feelings of isolation, with spouses feeling unable to ask for support (Mathews and Volberg 2013). Additionally, spouses reported a decreased interest in sex when problem gambling was present, particularly during heavy periods of gambling (Lorenz and Yaffee 1988). Female spouses have also reported the experience of family and domestic violence (Korman et al. 2008).

Social Harms

Spouses of people who experience problems with gambling also experience adverse effects on their social networks (Hodgins et al. 2007), as well as withdrawal from social relationships, due to shame and embarrassment (Mathews and Volberg 2013). Strains in spouses' extended relationships are often caused by an inability to afford social activities (Ferland et al. 2008), or from their partners borrowing or stealing from others (Mathews and Volberg 2013). The combination of the problematic relationship with the person who gambles, feelings of isolation, and the adverse impact on potentially supportive social networks creates a level of social isolation that puts the spouse at risk of a number of further downstream harms; especially health related outcomes such as anxiety and depression.

The Present Study

There have been few quantitative studies to examine differences in the prevalence and risk for gamblers compared to their spouses for the diverse harms that can arise from gambling. Furthermore, the existent quantitative research has enumerated and described harms to the spouse and gambler separately, rather than investigating the differential occurrence of harm jointly within one study. One recent study reported on the prevalence of harms to both gamblers and concerned significant others (Li et al. 2017), however it did not contrast the experience of the spouse with that of the gambler. Furthermore, most studies investigating emotional and other gambling-related harms have been with women, but have not addressed potential confounding of the spousal role (e.g., as a wife) with that of gender differences in the experience of gambling-harm (Dowling et al. 2009). Against this background, the present study addressed these gaps, and estimated the differential experience of harm for spouses, both male and female, emanating from gamblers with varying levels of problems.

Method

Given the similar social contexts and rates of gambling involvement within Australia and New Zealand (NZ), the current study involved a secondary analysis of two combined archival data sets from studies that aimed to estimate the impact of gambling harm in Victoria, Australia (Browne et al. 2016), and New Zealand (Browne et al. 2017). We analyse demographic details, the experience of individual harms, and the overall impact on six unique domains of gambling harm (e.g. financial, emotional, etc.). The recruitment process, as well as the questionnaire structure and format, were largely consistent across surveys in the two countries. Ethical approval for this secondary analysis was granted by the institutional Human Research Ethics Committee (H17/03-034).

Participants

Participants were recruited by commercial research panels and compensated through the award of points which could be redeemed as cash or for prizes. The combined dataset included responses from 6747 gamblers and CSOs, however as this study focused on gamblers and spouses only, 1711 CSOs that were not spouses (e.g. colleagues and children of gamblers) were removed from the dataset, yielding a total sample for analysis of 5036 cases. Participant ages ranged from 18 to 89 years ($M = 46.96$, $SD = 15.18$). Table 1 presents the breakdown of gender by gambler/spouse status. Over 40% of the sample were male gamblers, whereas affected male spouses of gamblers were a much smaller part of the total sample (< 4%).

Measures

These two datasets included a checklist of specific gambling harms (Browne et al. 2016), the Problem Gambling Severity Index (PGSI; Ferris and Wynne 2001), and demographic questions.

Gambling Harms Checklists

The Australian harms prevalence survey examined 72 individual harm items, and the NZ harms survey examined 83 items (the same 72 as the Australian survey + a further 11 items unique to the cultural context of NZ). Both these studies developed their surveys based on a comprehensive taxonomy of gambling related harms (Langham et al. 2016).

To address the aims of the current study we extracted a total of 67 gambling harm items from both surveys. Harm items that were specific to gamblers only, or to the cultural context of New Zealand, were excluded from the present analyses. The checklist of 67 items were organised into six domains of gambling harm: financial, relationship, emotional/psychological, health, work/study, and social deviance (Table 2).

Two versions of the survey were designed (one for gamblers, and the other for CSOs). The content within the surveys essentially remained consistent; and the main difference occurred in the phrasing. For example, an item designated for gamblers read: 'Felt compelled or forced to commit a crime or steal to fund gambling or pay debts'. The same item was slightly modified for CSOs responding to the questionnaire and read: 'Felt compelled or forced to commit a crime or steal to fund *their* gambling or pay debts'.

Table 1 Participant characteristics

Gender	Gambler *n* (%)	Spouse *n* (%)	Total *n* (%)
Male	2258 (44.84)	175 (3.47)	2433 (48.31)
Female	1769 (35.13)	834 (16.56)	2603 (51.69)
Total	4027 (79.97)	1009 (20.03)	5036 (100.00)

Table 2 Abbreviation and full labels of items within the gambling harms checklists

Item abbreviation	Full item label
Financial	
Late bills	Late payments on bills (e.g. utilities, rates)
Loss assets	Loss of significant assets (e.g. car, home, business, superannuation)
Red. Ben. Exp.	Less spending on beneficial expenses such as insurances, education, car and home maintenance
Emerg. Acc.	Needed emergency or temporary accommodation
Red. Ess. Exp.	Less spending on essential expenses such as medications, healthcare, food
Red. Rec. Exp.	Less spending on recreational expenses such as eating out, going to movies or other entertainment
Add. Employ.	Took on additional employment
Loss utilities	Loss of supply of utilities (electricity, gas, etc.)
Welfare	Needed assistance from welfare organisations (foodbanks or emergency bill payments)
Sold items	Sold personal items
Bankrup	Bankruptcy
Inc. CC. Debt	Increased credit card debt
Red. Sav.	Reduction of my savings
Red. Spend.	Reduction of my available spending money
Work/study	
Red. Perf.	Reduced performance at work or study (i.e. due to tiredness or distraction)
Conflict	Conflict with my colleagues
Lack Prog.	Lack of progression in my job or study
Resources[a]	Used my work or study resources to [assist with matters arising from their gambling] gamble
Absent	Was absent from work or study
Hin. Job. Seek	Hindered my job seeking efforts
Late	Was late for work or study
Lost job	Lost my job
Exc. Study	Excluded from study
Time[a]	Used my work or study time to [attend issues caused by their gambling] gamble
Health	
Red. Sleep Worry[a]	Loss of sleep due to stress or worry about [their] gambling or gambling-related problems
Stress problems	Stress related health problems (e.g. high blood pressure, headaches)
Depression	Increased experience of depression
Overeating	Ate too much
Service[a]	Increased use of health services due to health issues caused or exacerbated by my [their] gambling
Malnutrition	Didn't eat as much or often as I should
Tobacco	Increased my use of tobacco
Emerg. Treat.[a]	Required emergency medical treatment for health issues caused or exacerbated by [their] gambling
Red. Sleep gamb[a]	Loss of sleep due to spending time [with the person] gambling
Living cond.	Unhygienic living conditions (living rough, neglected or unclean housing, etc.)
Alcohol	Increased my consumption of alcohol
Medical needs	Neglected my medical needs (including taking prescribed medications)

Table 2 (continued)

Item abbreviation	Full item label
Self-harm	Committed acts of self-harm
Physical activity[a]	Reduced physical activity due to my [their] gambling
Suicide	Attempted suicide
Hygiene	Neglected my hygiene and self-care
Emotional/psychological	
Distress[a]	Felt distressed about my [their] gambling
Escape	Thoughts of running away or escape
Hopeless[a]	Feelings of hopelessness about my [their] gambling
Vulnerable	Felt insecure or vulnerable
Ext. Distress	Feelings of extreme distress
Anger[a]	Felt angry about not controlling my [their] gambling
Worthless	Felt worthless
Shame[a]	Felt ashamed of my [their] gambling
Failure	Felt like a failure
Relationship	
Increased conflict	Experienced greater conflict in my relationships (arguing, fighting, ultimatums)
Increased tension	Experienced greater tension in my relationships (suspicion, lying, resentment, etc.)
Actual ending	Actual separation or ending a relationship/s
Belittled	Felt belittled in my relationships
Threat ending	Threat of separation or ending a relationship/s
Red. events	Spent less time attending social events (non-gambling related)
Red. Enjoyment	Got less enjoyment from time spend with people I care about
Isolation	Social isolation (felt excluded or shut-off from others)
Reduced time	Spend less time with people I care about
Neglected Resp.	Neglected my relationship responsibilities
Social deviance	
Violence	Had experienced with violence (include family/domestic violence)
Children neglected	Didn't fully attend to needs of children
Pay money	Promised to pay back money without genuinely intending to do so
Children Unsup.	Left children unsupervised
Arrested driving	Arrested for unsafe driving
Took money	Took money or items from friends or family without asking first
Theft government	Petty theft or dishonesty in respect to government businesses or other people (not family/friends)
Crime[a]	Felt compelled or forced to commit a crime or steal to fund [their] gambling or pay debts

[a]Indicates where phrasing was slightly altered for gamblers and spouses. The square brackets indicate the alternate phrasing for spouses

Sampling

Recruitment in both studies occurred in two stages. The first stage recruited individuals who: (i) had experienced *problems* in their life (no matter how minor) due to their own

gambling or (ii) experienced *problems* due to the gambling of someone close to them (Fig. 1).

The second stage of recruitment was similar to stage one, however rather than focussing on the experience of problems, its focus was on frequency; and therefore involved participants (gamblers/CSOs) who had a time in their life where they gambled *often* or were close to someone who gambled often.

Survey Design

The present study utilised a retrospective design; participants (gamblers and their spouses) reviewed the harms checklist (Table 2) and checked-off on whether they had experienced a particular harm as a result of gambling in the 12 month period when the gambling was causing the most problems (stage 1) or occurring frequently (stage 2). In addition to reviewing the harms checklist, participants also completed the Problem Gambling Severity Index (PGSI).

The PGSI is a nine item questionnaire intended for use within the general population to measure problem gambling severity (Ferris and Wynne 2001). In the current study the PGSI items were slightly modified to reflect a retrospective 12 month period when the gambling was causing the most problems or occurring frequently, rather than the immediately prior 12 month period. Furthermore, CSOs completed the PGSI second hand from the perspective of the gambler whom they were close to. Despite the PGSI being completed second-hand by spouses, the 67 item harm checklist was answered from the account of the person who had actually experienced them; thus gamblers reported the harms they had experienced as a result of their own gambling, and spouses reported harms they had experienced as a result of their spouses gambling.

A detailed evaluation of the psychometric validity of these modifications has been reported in the original studies. It was demonstrated that (i) the PGSI functioned similarly between gambler's self-reports and affected-others' second hand reports, and (ii) retrospective duration did not affect the structural characteristics of the items (Browne et al. 2016, 2017).

The recruitment process yielded a high proportion of moderate-risk and problem gamblers, which was a consequence of both the inclusion criteria, and the fact that online panels appear to comprise a higher proportion of problem gamblers than the general population (Li et al. 2017). The distribution of the PGSI categories by gambler/spouses status is presented in Table 3.

Data Analyses

Data was assessed for normality and missing values, then analysed in two stages using the R statistical package (R Core Team 2013). First, responses were analysed at the domain level, focusing on the count of specific harms indicated within each domain. Data residuals for the ordinary least squares (OLS) were checked for normality and were acceptable. Six ordinary least squares regressions were conducted using binary contrasts for spouse versus gambler (as the origin of the data record), whilst controlling for the gender and level of gambling problems (as measured by the PGSI). Transformation of the PGSI score via log transformation is a common practice, as it tends to linearise the relationship of the score with the presumed construct of gambling problems, and thus was used in these analyses.

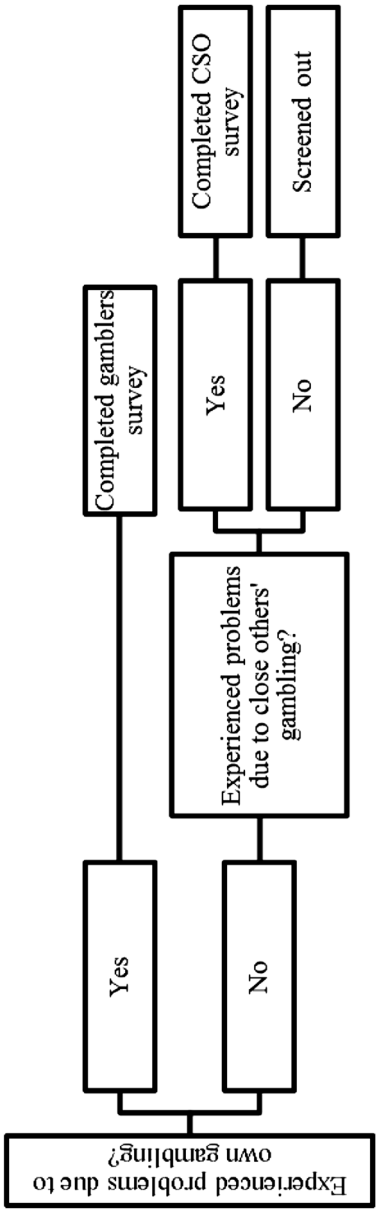

Fig. 1 Stage 1 recruitment logic

Table 3 Problem gambling status

PGSI category	Gambler *n* (%)	Spouse *n* (%)	Total *n* (%)
Non-problem	203 (4.03)	28 (0.56)	231 (4.59)
Low risk	279 (5.54)	40 (0.79)	319 (6.33)
Moderate risk	1163 (23.09)	218 (4.33)	1381 (27.42)
Problem gambler	2382 (47.30)	723 (14.36)	3105 (61.66)

Secondly, individual harms within each domain were analysed, using 67 logistic regressions (one for each harm) which incorporated the same predictors. A preliminary analysis confirmed that there were few differences between the Australia and New Zealand participant sample, therefore country was not included in the model. Variance inflation factors, eigenvalues, and tolerance diagnostics were inspected, and met assumptions regarding multicollinearity. Our interpretation of the 67 logistic regressions is based on overall patterns in effect size (i.e. odds-ratios; OR) rather than null hypothesis testing. Accordingly, *p*-values were not adjusted and therefore firm conclusions regarding the effects of predictors on specific harms should be based on the $p < .001$ threshold to maintain study-wide error rates at an acceptable minimum.

Results

Table 4 describes the pattern of harm occurring at the domain level. The models provide information about the impact of gender and spouse-vs-gambler status, while controlling for gambling problems as a covariate. For example, in the financial domain gambling problems are accounting for 29.78 of variance (Model 0). When we add in gender and spouse-vs-gambler status (Model 1) the variance explained only increases slightly by 0.08.

This pattern was generally consistent among the other domains, however the largest increase in variance explained occurred in the relationship domain followed by the work/study domain. Although there is a significant increase in the variance explained in all of the domains, the effect sizes are small. At the domain level, quantitatively there is little to no practical impact of gender and spouse-vs-gambler status.

For ease of interpretation, Table 5 below only presents the ORs which are significant at the $p < .001$ criterion for the gamblers versus spouses contrast. The complete set of ORs for each of the six domains for spouse versus gamblers and males versus females are presented at "Appendix".

The specific harms in Table 5 are ordered with respect to spouse ORs. ORs above 1 (in Table 5) mean that this particular harm is more likely to be reported by the spouse rather than the gambler, for the given degree of gambling problem. For example, in Table 5 financial harms, the specific harm 'late bills' is 1.37 times more likely to be reported by spouses than gamblers. Conversely, ORs below 1 mean this harm is more likely to occur to the gambler than the spouse.

Table 4 Regression models predicting the count of harms for each domain

	Domain and *n* of harms	Financial (14)	Work/study (10)	Health (16)	Emo/Psych. (9)	Relationship (10)	Soc. deviance (8)
Model 0	Intercept	−0.82*	−0.82*	−1.44*	−1.55*	−1.28*	0.56*
	log(PGSI + 1)	1.94*	0.90*	1.93*	2.13*	1.81*	0.54*
	R^2 (%)	29.78	14.87	27.46	34.56	27.81	11.96
Model 1	Intercept	−0.79	−0.67	−1.32*	−1.67*	−1.27*	−0.49*
	log(PGSI + 1)	1.95	0.92*	1.96*	2.11*	1.75*	0.55*
	spouse versus gambler	−0.19*	−0.17*	−0.24*	0.31*	1.31*	0.00
	gender	−0.05	−0.31*	−0.22*	0.21*	−0.26*	−0.13*
	R^2 (%)	29.86	16.02	27.79	35.04	31.58	12.22
Delta	$\boldsymbol{R^2}$ (%)	**0.08***	**1.15***	**0.33***	**0.48***	**3.77***	**0.26***

*$p < .001$

Table 5 ORs [and 95% confidence intervals] of harm items by spouse versus gambler contrast

Domain	Abbreviated item	OR spouse
Financial	Late bills	1.37 [1.16,1.61]
	Inc. CC. Debt	0.73 [0.62,0.87]
	Red. Sav.	0.52 [0.44,0.61]
	Red. Spend.	0.51 [0.44,0.60]
Work/study	Red. Perf.	1.64 [1.38,1.94]
	Late	0.61 [0.49,0.76]
	Exc. Study	0.46 [0.31,0.66]
	Time	0.36 [0.27,0.47]
Health	Red. Sleep Worry	1.88 [1.60,2.22]
	Stress problems	1.44 [1.22,1.70]
	Red. Sleep Gamb	0.68 [0.57,0.81]
	Alcohol	0.66 [0.54,0.80]
	Physical activity	0.51 [0.42,0.61]
	Suicide	0.45 [0.29,0.68]
	Hygiene	0.43 [0.32,0.58]
Emotional/psychological	Distress	3.00 [2.54,3.55]
	Escape	2.11 [1.78,2.50]
	Hopeless	1.67 [1.42,1.96]
	Vulnerable	1.44 [1.22,1.69]
	Ext. Distress	1.39 [1.17,1.65]
	Worthless	0.70 [0.57,0.85]
	Shame	0.53 [0.45,0.62]
	Failure	0.30 [0.25,0.37]
Relationship	Increased conflict	6.55 [5.51,7.80]
	Increased tension	6.23 [5.22,7.45]
	Actual ending	5.65 [4.70,6.81]
	Belittled	3.98 [3.31,4.78]
	Threat ending	3.97 [3.33,4.73]
	Reduced time	0.65 [0.55,0.76]
	Neglected Resp.	0.55 [0.46,0.66]
Social deviance	Violence	2.83 [2.27,3.53]
	Theft government	0.55 [0.40,0.76]
	Crime	0.36 [0.25,0.52]

For simplicity we present the abbreviated item names; the full item label can be viewed at Table 2

Discussion

The present study aimed to compare the experience of gambling related harms between gamblers and spouses, whilst taking into account the gambler's gender and problem gambling severity. Overall we found that there were a similar number of harms across all domains experienced by spouses (vs gamblers), but the nature of the experience and types of harms reported were markedly different. The most notable difference between spouses and gamblers was in the quantity of harms experienced in the emotional/psychological and

relationship categories. Spouses reported the highest degree of harms within the emotional/psychological, and relationship domains, whereas gamblers experienced a higher number of harms in all other domains. Overall a pattern of difference can be identified across the domains between gamblers and spouses in the experience of gambling related harm. These findings are consistent with the theory (Kalischuk 2010) that family members are affected similarly in quantity, but uniquely in quality, by gambling harm.

Profiles of Harm Among Spouses and Their Gambling Counterparts

Across the domains the harms gamblers reported more commonly than spouses were more immediate and overt. Gamblers were more apt to identify and report specific, direct effects of their gambling. In contrast, spouses reported fewer immediate effects compared to effects that could be a secondary consequence of the direct effects reported by gamblers.

Financial Harms

In the financial harms domain, gamblers were more likely to report harms which centred on individual problems associated with lack of ability to spend or access money, whilst spouses identified the effects felt collectively by the household of late bill payments. This may reflect the tendency of the spouse to assume responsibility for household budgeting, where spending had been previously identified as a response to the problems (Dickson-Swift et al. 2005; Ferland et al. 2008; Mathews and Volberg 2013; Valentine and Hughes 2010).

Work/Study Harms

In terms of the impact on their work or study, gamblers were more likely to identify and report being late, using work or study time to gamble, or be excluded from study, whilst spouses reported reduced performance. The difference is of interest because any of the impacts reported by the gambler could be seen as a reduced performance. These tend to be more severe harms (Li et al. 2017) that reflect the personal time investment of problematic gamblers, where a gambler will risk finances from employment in favour of gambling (Raghunathan and Pham 1999). This suggests that the significantly higher reporting on reduced performance by the spouse is reflective of their awareness of a more non-specific overall effect, caused by distraction and worry over the other impacts of gambling related harm, and resulting in difficulties concentrating on their work or study (Dickson-Swift et al. 2005).

Health

Gamblers reported specific changes to health-relevant behaviours such as alcohol consumption, declines in their hygiene practices, attempted suicide, loss of sleep, and reduced physical activity. This is congruent with the large literature on gambling co-morbidities, which may be partially driven by the fact that; in common with gambling; alcohol, smoking and drug-use are driven by traits that lead to general over-consumption (Goodwin et al. 2015). Gamblers are consistently noted as being at high risk of self-harm and suicide due to feelings of hopelessness, being unable to attain money to repay their debts, and feeling like a burden to their families (Hodgins et al. 2007). In comparison, spouses were more

likely to report health issues relating to worry or stress. This finding is consistent with research that noted the psychological burden that many spouses of gamblers face in dealing with their gambling partner, and how this also results in other stress-related health problems such as frequent headaches, irritable bowel, high blood pressure, faintness and breathing difficulties (Lesieur 1998; Lorenz and Yaffee 1988), insomnia, excessive eating, panic attacks, and exhaustion (Patford 2009). An important difference highlighting this pattern of immediate and proximal harms noted between the two groups in the present study is that the person who gambles is more likely to report loss of sleep due to spending time gambling, whilst spouses are more likely to report loss of sleep due to stress or worry.

Emotional/Psychological Harms

Gamblers reported significantly more experiences of feelings of shame, worthlessness and failure. People experiencing problems with gambling may persist in a cycle of excessive consumption until the negative consequences from the behaviour become impossible to ignore. Gamblers' tendency to 'live in the moment' (Potenza 2008) may explain why their emotions are not associated with the consequences of gambling until it is 'too late'. This leads to extreme negative self-regard within the gambler as they respond emotionally to the awareness of their own condition and the impacts of their behaviour (Ciccarelli et al. 2017). Spouses of problem gamblers, being outside of the gambling disorder, experience the consequences of gambling harm as something that is impacting their day to day activities. As a consequence, they were more likely than gamblers to report feelings of (extreme) distress, the desire to escape the relationship, a sense of hopelessness, and vulnerability. Prior research by Kushnir et al. (2016) found that all family members of problem gamblers experienced similar feelings of anger, distress, vulnerability, and distrust, driven by a perceived lack of control, and feeling betrayed by the gambler. These emotions were reported to arise from what they perceived as the irresponsibility of the gambler and from the resulting loss of a sense of safety and security (Kushnir et al. 2016).

Relationship Harms

In the category of relationship harms, the person who gambles more commonly reported the reduction of time spent tending to relationships or neglecting their responsibilities within their relationships. Spouses were five to six times more likely to report the increased tension, conflict, and ultimately ending of relationships. These patterns of findings are consistent with earlier work by Langham et al. (2016) who extended Korn and Shaffer's (1999) metaphor of the epidemiological triangle: to position the person who gambles as the index case for gambling harm, that later spreads like a contagion to those around them.

These findings suggest that spouses might not only be experiencing relationship problems at a far greater level than gamblers, but also perceiving these problems to be more significant. This could be because gamblers are more focused on gambling, and that they are less aware of relationship dysfunction, as suggested by their increased likelihood to neglect their relationship responsibilities and spend less time with people they care about. Thus, gamblers may not share the spouses' perception of the state of their relationships, and may tend to downplay conflicts, tension, belittlement and the real potential for their relationships to end. This is consistent with previous findings that over three-quarters of spouses of problem gamblers reported they had threatened to leave the marriage and some had gone on to divorce (Dickson-Swift et al. 2005; Mathews and Volberg 2013).

Implications

The differences identified in the harms reported between gamblers and spouses are of utility in targeting messages aimed at prompting self-assessment as part of broader public health awareness and education strategies. Messages aimed at people who gamble may be more effective when focussed on immediate and practical consequences such as reduced savings, being late for work, declining personal hygiene, or spending less time with family. These prompts may resonate with an experience the person identifies with, and provide increased motivation for some level of behaviour change. Similarly targeting messages for spouses that reference the influence of someone else's gambling causing household bills to be late, loss of sleep, feelings of distress, or increased tension in the relationship, may resonate.

Limitations

Whilst the study drew on a large sample, it is important to note that it was not necessarily representative. Due to the low prevalence of problem gambling, it was necessary to oversample this group. Our findings primarily reflect moderate-risk and problem gamblers, rather than recreational and low-risk gamblers. However, our results are provided after controlling for problem gambling risk status (PGSI) and gender. Overall male spouses were under-represented in the study, due to higher rates of problem gamblers that are both male and in heterosexual relationships. A dedicated sampling of male spouses of gamblers could address this limitation in the future. Additionally, examining differences between heterosexual and homosexual relationships would also be of benefit in future studies.

Spouses assessed PGSI second-hand in this study, however the PGSI is known to function in the same way between respondents' self-reports and spouses' second-hand reports (as noted in Browne et al. 2016). We therefore consider the responses of gamblers and spouses to provide a valid representation of harms accumulating from increasing gambling severity (i.e. PGSI). Both gamblers and spouses are likely biased to some degree, to the degree to which they over- or under-report harms from gambling, and, given our use of self-report measures, it is difficult to assess the degree to which this occurs. However, in the present study, the main interest is in the *differential* effects, across harms and domains—which are likely to be relatively unaffected by a general bias towards minimisation or exaggeration of harms. An avenue for future research could include using a matched-pairs design, where surveys are completed by gamblers and their respective partners, rather than groups of gamblers and spouses.

Conclusion

Spouses and gamblers appear to experience a similar quantity of harm across all six domains, for a given degree of gambling problems. However, the specific profile of harms—or the quality of the experience—within each domain area are markedly different for spouses compared to gamblers. This study has confirmed and built upon prior qualitative findings on gambling-related harms incurred on gamblers and spouses, while accounting for potential gender differences. It is the first known gambling-related harm study that directly contrasts spouses versus gamblers in terms of their experiences of harm. The

findings of this study provide vital evidence that different harms can occur to both gamblers and their spouses. It highlights the unique ways in which gamblers and their spouses each respond to the presence of a gambling problem. Such findings are relevant to therapists and other support staff, to identify gambling-related harms and assist in delivering harm minimisation efforts for both gamblers and spouses alike.

Funding Funding was awarded from the Victorian Responsible Gambling Foundation and New Zealand Ministry of Health for the larger gambling harms studies from which the data was obtained for the current manuscript. No funding was received for the preparation of this manuscript or the findings here in.

Compliance with Ethical Standards

Conflict of interest Matthew Browne has received grants from the Victorian Responsible Gambling Foundation, the New Zealand Ministry of Health and Gambling Research Australia. Erika Langham has received grants from Victorian Responsible Gambling Foundation, Gambling Research Australia, Australian National Research Organisation for Women's Safety, Department of Human Services, New Zealand Ministry of Health, Queensland Education, Lowitja Institute, and Menzies School of Health. She has also received honorarium and had travel costs paid by Victorian Responsible Gambling Foundation, Gambling Impact Society, Gamble Aware and the Gambling Research Exchange Ontario. Matthew Rockloff has received grants from the Queensland Treasury, the Victorian Treasury, the Victorian Responsible Gambling Foundation, the New Zealand Ministry of Health and Gambling Research Australia. En Li has received research grants from the Victorian Responsible Gambling Foundation and Gambling Research Australia. Lisa Jeffries and Vijay Rawat declare no conflict of interest.

Ethical Approval All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Appendix

See Table 6.

Table 6 Full odds ratios of harm items

Domain	Abbreviated item	OR intercept*	OR log(PGSI + 1)*	OR spouse	OR female	*R*
Financial	Late bills	0.01 [0.01, 0.01]	5.08 [4.44, 5.84]	1.37 [1.16, 1.61][a]	1.02 [0.89, 1.17]	0.36
	Loss assets	0.00 [0.00, 0.00]	7.27 [5.75, 9.25]	1.35 [1.06, 1.72]	0.59 [0.48, 0.73][a]	0.24
	Red. Ben. Exp.	0.01 [0.00, 0.01]	4.90 [4.22, 5.70]	1.30 [1.10, 1.55]	0.96 [0.83, 1.11]	0.32
	Emerg. Acc.	0.00 [0.00, 0.00]	8.34 [5.67, 12.52]	1.21 [0.82, 1.75]	0.81 [0.58, 1.13]	0.15
	Red. Ess. Exp.	0.00 [0.00, 0.01]	5.55 [4.75, 6.51]	1.16 [0.97, 1.38]	1.10 [0.95, 1.28]	0.32
	Red. Rec. Exp.	0.19 [0.15, 0.23]	2.12 [1.95, 2.32]	1.11 [0.95, 1.29]	1.04 [0.92, 1.17]	0.26
	Add. Employ.	0.00 [0.00, 0.00]	5.09 [3.97, 6.59]	0.95 [0.71, 1.26]	0.77 [0.61, 0.97]	0.18
	Loss utilities	0.00 [0.00, 0.00]	5.78 [4.63, 7.26]	0.93 [0.72, 1.19]	0.79 [0.65, 0.97]	0.22
	Welfare	0.00 [0.00, 0.00]	6.35 [5.17, 7.87]	0.88 [0.70, 1.09]	1.20 [0.99, 1.45]	0.25
	Sold items	0.00 [0.00, 0.00]	9.29 [7.7, 11.27]	0.76 [0.62, 0.93]	0.87 [0.74, 1.02]	0.34
	Bankrup	0.00 [0.00, 0.00]	7.67 [5.41, 11.04]	0.76 [0.50, 1.11]	0.69 [0.51, 0.93]	0.16
	Inc. CC. Debt	0.02 [0.01, 0.03]	4.08 [3.59, 4.66]	0.73 [0.62, 0.87][a]	0.87 [0.76, 0.99]	0.32
	Red. Sav.	0.11 [0.09, 0.14]	3.04 [2.76, 3.35]	0.52 [0.44, 0.61][a]	0.99 [0.87, 1.12]	0.35
	Red. Spend.	0.32 [0.26, 0.39]	2.27 [2.09, 2.48]	0.51 [0.44, 0.60][a]	1.27 [1.12, 1.45][a]	0.30
Work/Study	Red. Perf.	0.01 [0.01, 0.02]	4.05 [3.52, 4.66]	1.64 [1.38, 1.94][a]	0.76 [0.65, 0.87][a]	0.31
	Conflict	0.00 [0.00, 0.00]	5.22 [3.98, 6.92]	1.07 [0.78, 1.46]	0.62 [0.48, 0.80][a]	0.17
	Lack Prog.	0.00 [0.00, 0.01]	4.43 [3.64, 5.43]	1.04 [0.82, 1.31]	0.77 [0.64, 0.94]	0.21
	Resources	0.00 [0.00, 0.00]	5.16 [4.06, 6.64]	0.79 [0.58, 1.07]	0.57 [0.45, 0.71][a]	0.20
	Absent	0.00 [0.00, 0.00]	5.88 [4.86, 7.16]	0.75 [0.60, 0.94]	0.71 [0.60, 0.85][a]	0.26
	Hin. Job. Seek	0.00 [0.00, 0.00]	5.41 [4.34, 6.79]	0.73 [0.56, 0.95]	0.76 [0.62, 0.94]	0.21
	Late	0.01 [0.00, 0.01]	4.82 [4.05, 5.76]	0.61 [0.49, 0.76][a]	0.79 [0.67, 0.94]	0.26
	Lost job	0.00 [0.00, 0.00]	6.97 [5.27, 9.33]	0.55 [0.38, 0.79]	0.56 [0.44, 0.73][a]	0.20
	Exc. Study	0.00 [0.00, 0.01]	4.15 [3.26, 5.34]	0.46 [0.31, 0.66][a]	0.64 [0.50, 0.81][a]	0.18
	Time	0.01 [0.00, 0.01]	4.22 [3.53, 5.07]	0.36 [0.27, 0.47][a]	0.68 [0.57, 0.81][a]	0.25

Table 6 (continued)

Domain	Abbreviated item	OR intercept*	OR log(PGSI + 1)*	OR spouse	OR female	*R*
Health	Red. Sleep Worry	0.01 [0.00, 0.01]	6.43 [5.60, 7.41]	1.88 [1.60, 2.22][a]	1.10 [0.96, 1.26]	0.43
	Stress problems	0.01 [0.01, 0.01]	4.71 [4.09, 5.44]	1.44 [1.22, 1.70][a]	0.97 [0.84, 1.11]	0.33
	Depression	0.01 [0.01, 0.01]	4.85 [4.23, 5.59]	1.06 [0.90, 1.25]	1.12 [0.97, 1.28]	0.34
	Overeating	0.02 [0.01, 0.02]	2.54 [2.17, 2.99]	1.04 [0.84, 1.29]	1.10 [0.92, 1.31]	0.17
	Service	0.00 [0.00, 0.00]	11.25 [7.88, 16.31]	1.03 [0.74, 1.43]	1.13 [0.85, 1.51]	0.18
	Malnutrition	0.01 [0.01, 0.02]	4.03 [3.49, 4.69]	0.95 [0.79, 1.15]	0.79 [0.68, 0.92]	0.27
	Tobacco	0.03 [0.02, 0.04]	2.92 [2.59, 3.30]	0.75 [0.63, 0.89]	1.06 [0.93, 1.22]	0.26
	Emerg. Treat.	0.00 [0.00, 0.00]	6.19 [4.76, 8.12]	0.72 [0.52, 0.99]	0.59 [0.46, 0.75][a]	0.20
	Red. Sleep Gamb	0.01 [0.01, 0.02]	4.41 [3.85, 5.06]	0.68 [0.57, 0.81][a]	0.92 [0.80, 1.05]	0.32
	Living cond.	0.00 [0.00, 0.01]	4.40 [3.58, 5.46]	0.66 [0.50, 0.87]	0.68 [0.56, 0.84][a]	0.21
	Alcohol	0.08 [0.06, 0.10]	2.22 [1.99, 2.49]	0.66 [0.54, 0.80][a]	0.52 [0.45, 0.60][a]	0.25
	Medical needs	0.00 [0.00, 0.00]	12.1 [9.27, 15.95]	0.65 [0.49, 0.85]	0.95 [0.77, 1.17]	0.25
	Self-harm	0.00 [0.00, 0.00]	8.23 [5.45, 12.71]	0.55 [0.34, 0.85]	1.57 [1.10, 2.24]	0.14
	Physical activity	0.02 [0.02, 0.03]	3.46 [3.04, 3.95]	0.51 [0.42, 0.61][a]	0.82 [0.71, 0.94]	0.29
	Suicide	0.00 [0.00, 0.00]	5.82 [4.24, 8.12]	0.45 [0.29, 0.68][a]	1.05 [0.79, 1.39]	0.15
	Hygiene	0.00 [0.00, 0.00]	6.56 [5.25, 8.26]	0.43 [0.32, 0.58][a]	0.61 [0.50, 0.75][a]	0.25
Emotional/ Psych.	Distress	0.02 [0.01, 0.03]	4.41 [3.92, 4.98]	3.00 [2.54, 3.55][a]	1.30 [1.14, 1.48][a]	0.44
	Escape	0.00 [0.00, 0.00]	6.52 [5.57, 7.68]	2.11 [1.78, 2.50][a]	1.08 [0.93, 1.25]	0.37
	Hopeless	0.01 [0.01, 0.02]	5.11 [4.50, 5.83]	1.67 [1.42, 1.96][a]	0.97 [0.85, 1.11]	0.40
	Vulnerable	0.01 [0.00, 0.01]	5.34 [4.63, 6.18]	1.44 [1.22, 1.69][a]	1.17 [1.02, 1.35]	0.36
	Ext. Distress	0.00 [0.00, 0.00]	10.72 [9.08, 12.71]	1.39 [1.17, 1.65][a]	1.05 [0.91, 1.22]	0.44
	Anger	0.03 [0.02, 0.04]	4.47 [3.98, 5.03]	1.22 [1.04, 1.43]	1.08 [0.95, 1.23]	0.40
	Worthless	0.00 [0.00, 0.00]	8.95 [7.46, 10.8]	0.70 [0.57, 0.85][a]	1.27 [1.09, 1.49]	0.34
	Shame	0.03 [0.02, 0.04]	4.29 [3.83, 4.82]	0.53 [0.45, 0.62][a]	1.47 [1.29, 1.67][a]	0.40
	Failure	0.01 [0.00, 0.01]	6.78 [5.84, 7.91]	0.30 [0.25, 0.37][a]	0.88 [0.77, 1.01]	0.40

Table 6 (continued)

Domain	Abbreviated item	OR intercept*	OR log(PGSI + 1)*	OR spouse	OR female	*R*
Relationship	Increased conflict	0.01 [0.00, 0.01]	4.89 [4.25, 5.64]	6.55 [5.51, 7.80][a]	1.02 [0.88, 1.18]	0.47
	Increased tension	0.01 [0.01, 0.01]	5.22 [4.57, 5.99]	6.23 [5.22, 7.45][a]	0.89 [0.77, 1.02]	0.48
	Actual ending	0.00 [0.00, 0.01]	4.71 [3.97, 5.62]	5.65 [4.70, 6.81][a]	0.66 [0.55, 0.79][a]	0.37
	Belittled	0.00 [0.00, 0.01]	4.06 [3.42, 4.85]	3.98 [3.31, 4.78][a]	1.14 [0.95, 1.37]	0.33
	Threat ending	0.00 [0.00, 0.01]	5.01 [4.28, 5.90]	3.97 [3.33, 4.73][a]	0.77 [0.66, 0.91]	0.37
	Red. Events	0.03 [0.02, 0.03]	3.50 [3.10, 3.96]	1.00 [0.85, 1.18]	0.86 [0.75, 0.99]	0.30
	Red. Enjoyment	0.01 [0.01, 0.02]	4.35 [3.78, 5.04]	1.00 [0.84, 1.19]	0.76 [0.66, 0.88][a]	0.30
	Isolation	0.01 [0.01, 0.01]	4.36 [3.79, 5.04]	0.99 [0.83, 1.18]	0.98 [0.85, 1.14]	0.30
	Reduced time	0.04 [0.03, 0.05]	3.71 [3.31, 4.16]	0.65 [0.55, 0.76][a]	0.83 [0.73, 0.94]	0.34
	Neglected Resp.	0.02 [0.01, 0.02]	4.71 [4.11, 5.41]	0.55 [0.46, 0.66][a]	0.63 [0.55, 0.73][a]	0.35
Social Deviance	Violence	0.00 [0.00, 0.00]	4.13 [3.32, 5.18]	2.83 [2.27, 3.53][a]	1.34 [1.07, 1.68]	0.24
	Children neglected	0.01 [0.00, 0.01]	3.26 [2.70, 3.97]	1.36 [1.08, 1.71]	0.92 [0.76, 1.13]	0.18
	Pay money	0.00 [0.00, 0.00]	6.96 [5.64, 8.66]	0.96 [0.76, 1.20]	0.87 [0.72, 1.05]	0.25
	Children Unsup.	0.00 [0.00, 0.00]	5.51 [3.88, 7.97]	0.77 [0.50, 1.16]	0.72 [0.52, 1.00]	0.13
	Arrested driving	0.00 [0.00, 0.00]	5.71 [4.03, 8.24]	0.68 [0.41, 1.06]	0.41 [0.29, 0.58][a]	0.15
	Took money	0.00 [0.00, 0.00]	6.96 [5.57, 8.77]	0.65 [0.50, 0.84]	0.68 [0.55, 0.82][a]	0.25
	Theft government	0.00 [0.00, 0.00]	5.47 [4.30, 7.02]	0.55 [0.40, 0.76][a]	0.63 [0.50, 0.79][a]	0.20
	Crime	0.00 [0.00, 0.00]	6.91 [5.34, 9.04]	0.36 [0.25, 0.52][a]	0.61 [0.48, 0.77][a]	0.22

Square brackets indicate 95% confidence intervals

Odds ratios are ordered from largest to smallest by gambler versus spouse status *within* each domain

R = point-biserial correlation between the linear predictor and the response (occurrence of harm or not)

*$p < .001$ for all ORs in this column

[a]$p < .001$

References

Browne, M., Bellringer, M., Greer, N., Kolandai-Matchett, K., Rawat, V., Langham, E., et al. (2017). *Measuring the burden of gambling harm in New Zealand*. Wellington: New Zealand Ministry of Health.

Browne, M., Langham, E., Rawat, V., Greer, N., Li, E., Rose, J., et al. (2016). *Assessing gambling-related harm in Victoria: A public health perspective*. Melbourne, VIC: Victorian Responsible Gambling Foundation.

Ciccarelli, M., Griffiths, M. D., Nigro, G., & Cosenza, M. (2017). Decision making, cognitive distortions and emotional distress: A comparison between pathological gamblers and healthy controls. *Journal of Behavior Therapy and Experimental Psychiatry, 54,* 204–210. https://doi.org/10.1016/j.jbtep.2016.08.012.

Dickson-Swift, V. A., James, E. L., & Kippen, S. (2005). The experience of living with a problem gambler: Spouses and partners speak out. *Journal of Gambling Issues*. https://doi.org/10.4309/jgi.2005.13.6.

Dowling, N., Smith, D., & Thomas, T. (2009). The family functioning of female pathological gamblers. *International Journal of Mental Health and Addiction, 7,* 29–44. https://doi.org/10.1186/2195-3007-3-13.

Ferland, F., Fournier, P. M., Ladouceur, R., Brochu, P., Bouchard, M., & Pâquet, L. (2008). Consequences of pathological gambling on the gambler and his spouse. *Journal of Gambling Issues, 22,* 219–229. https://doi.org/10.4309/jgi.2008.22.5.

Ferris, J., & Wynne, H. (2001). *The Canadian problem gambling index: Final report*. Ottawa, ON: Canadian Centre on Substance Abuse.

Gainsbury, S., Hing, N., & Suhonen, N. (2013). Professional help-seeking for gambling problems: Awareness, barriers and motivators for treatment. *Journal of Gambling Studies, 30,* 503–519. https://doi.org/10.1007/s10899-013-9373-x.

Goodwin, B. C., Browne, M., Rockloff, M., & Donaldson, P. (2015). Do gamblers eat more salt? Testing a latent trait model of covariance in consumption. *Journal of Behavioral Addictions, 4,* 170–180. https://doi.org/10.1556/2006.4.2015.022.

Hing, N., Tiyce, M., Holdsworth, L., & Nuske, E. (2013). All in the family: Help-seeking by significant others of problem gamblers. *International Journal of Mental Health and Addiction, 11,* 396–408. https://doi.org/10.1007/s11469-012-9423-0.

Hodgins, D. C., Shead, N. W., & Makarchuk, K. (2007). Relationship satisfaction and psychological distress among concerned significant others of pathological gamblers. *The Journal of Nervous and Mental Disease, 195,* 65–71. https://doi.org/10.1097/01.nmd.0000252382.47434.a6.

Kalischuk, R. G. (2010). Cocreating life pathways: Problem gambling and its impact on families. *The Family Journal, 18,* 7–17. https://doi.org/10.1177/1066480709357898.

Kalischuk, R. G., Nowatzki, N., Cardwell, K., Klein, K., & Solowoniuk, J. (2007). Problem gambling and its impact on families: A literature review. *International Gambling Studies, 6,* 31–60. https://doi.org/10.1080/14459790600644176.

Korman, L. M., Collins, J., Dutton, D., Dhayananthan, B., Littman-Sharp, N., & Skinner, W. (2008). Problem gambling and intimate partner violence. *Journal of Gambling Studies, 24,* 13–23. https://doi.org/10.1080/14459790600644176.

Korn, D., & Shaffer, H. (1999). Gambling and the health of the public: Adopting a public health perspective. *Journal of Gambling Studies, 15,* 289–365. https://doi.org/10.1023/a:1023005115932.

Kourgiantakis, T., Saint-Jacques, M. C., & Tremblay, J. (2013). Problem gambling and families: A systematic review. *Journal of Social Work Practice in the Addictions, 13,* 353–372. https://doi.org/10.1080/1533256x.2013.838130.

Kushnir, V., Godinho, A., Hodgins, D. C., Hendershot, C. S., & Cunningham, J. A. (2016). Gender differences in self-conscious emotions and motivation to quit gambling. *Journal of Gambling Studies, 32,* 969–983. https://doi.org/10.1007/s10899-015-9574-6.

Langham, E., Thorne, H., Browne, M., Donaldson, P., Rose, J., & Rockloff, M. (2016). Understanding gambling related harm: A proposed definition, conceptual framework, and taxonomy of harms. *BMC Public Health, 16,* 80. https://doi.org/10.1186/s12889-016-2747-0.

Lesieur, H. R. (1998). Costs and treatment of pathological gambling. *The Annals of the American Academy of Political and Social Science, 556,* 153–171. https://doi.org/10.1177/0002716298556001012.

Li, E., Browne, M., Rawat, V., Langham, E., & Rockloff, M. (2017). Breaking bad: comparing gambling harms among gamblers and affected others. *Journal of Gambling Studies, 33,* 223–248. https://doi.org/10.1007/s10899-016-9632-8.

Lorenz, V. C., & Yaffee, R. A. (1988). Pathological gambling: Psychosomatic, emotional and marital difficulties as reported by the spouse. *Journal of Gambling Behavior, 4,* 13–26. https://doi.org/10.1007/bf01043525.

Mathews, M., & Volberg, R. (2013). Impact of problem gambling on financial, emotional and social well-being of Singaporean families. *International Gambling Studies, 13,* 127–140. https://doi.org/10.1080/14459795.2012.731422.

Patford, J. (2009). For worse, for poorer and ill health: How women experience, understand and respond to a partner's gambling problems. *International Journal of Mental Health and Addictions, 7,* 177–189. https://doi.org/10.1080/14459795.2012.731422.

Potenza, M. N. (2008). The neurobiology of pathological gambling and drug addiction: An overview and new findings. *Philosophical Transactions of the Royal Society of London B: Biological Sciences, 363,* 3181. https://doi.org/10.1098/rstb.2008.0100.

R Core Team. (2013). *R: A language and environment for statistical computing*. Vienna: R Foundation for Statistical Computing. http://www.R-project.org.

Raghunathan, R., & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior and Human Decision Processes, 79,* 56–77. https://doi.org/10.1006/obhd.1999.2838.

Valentine, G., & Hughes, K. A. (2010). Ripples in a pond: The disclosure to, and management of, problem Internet gambling with/in the family. *Community, Work and Family, 13,* 273–290. https://doi.org/10.1080/13668803.2010.488107.