



Gamblers' Perceptions of Stakeholder Responsibility for Minimizing Gambling Harm

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Abstract

Increasingly, industry operators and governments espouse the view that they play a role in minimizing gambling harm and have developed and implemented programs and policies designed to promote responsible gambling. However, little is known about gamblers' perceptions of responsibility for minimizing gambling harm or whether these perceptions are linked to gamblers' own experience of gambling harm. Gamblers' perceptions of stakeholder responsibility for minimizing gambling harm could impact not only their gambling behavior but also the potential for legal action following excessive financial loss. We surveyed participants selected from MGM Resorts International (MGM)'s loyalty card database ($N = 3748$) regarding their perceptions of responsibility for minimizing gambling harm. Additionally, we administered the Brief Biosocial Gambling Screen (BBGS), the Positive Play Scale, and measures assessing participants' understanding of gambling concepts and use of responsible gambling strategies. Compared to those who screened negative, participants who screened positive on the BBGS had more diffuse conceptions of responsibility for minimizing gambling harm and were more likely to hold five particular stakeholder groups (e.g., MGM Resorts employees, government regulators, public safety officials) responsible. In multivariate analyses, participants' distributed sense of responsibility for reducing gambling harm predicted their BBGS status over and above other risk factors (i.e., Positive Play, understanding of gambling concepts, use of responsible gambling strategies). We discuss implications for responsible gambling programs and policies.

Keywords Gambling · Casino gambling · Problem gambling · Responsible gambling · Corporate social responsibility · Gambling disorder · Brief biosocial gambling screen

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Gambling disorder and its sub-clinical expression create lasting harm to gamblers, their loved ones, and the broader community. Preventing the incidence and reducing the prevalence of gambling problems requires identifying mutable risk factors at the level of the individual gambler, the game, and the gambling environment (Shaffer and Korn 2002; Zinberg 1984).

Responsible Gambling Initiatives

Increasingly, industry operators and governments espouse the view that minimizing gambling harm is a responsibility to be shared by individual gamblers, industry operators, governments, treatment providers, and community and consumer groups (e.g., American Gaming Association 2018; Australian Government Department of Social Services 2018; Massachusetts Gaming Commission 2018; Singapore Minister for Social and Family Development 2016). Consistent with this viewpoint, either in response to local regulations or as part of voluntary corporate social responsibility efforts, operators worldwide are implementing responsible gambling programs and policies (Blaszczynski et al. 2004; Shaffer et al. 2016). Responsible gambling programs and policies are designed to “prevent and reduce potential harms associated with gambling” and “often incorporate a diverse range of interventions designed to promote consumer protection, community/consumer awareness and education, and access to efficacious treatment” (Blaszczynski et al. 2004, p. 308). As Hing (2003, 2010) notes, American and Australian casinos began implementing responsible gambling policies and programs during the mid-to-late 1990s, partly in response to pressure from advocates who argued that gambling operators and governments should take more responsibility for minimizing gambling harm. Hing (2010) describes how responsible gambling policies and practices have, over time, become embedded within Australian operators’ normal business practices. More recently, responsible gambling programs have been introduced into Asia (e.g., Huang 2011; Philander 2017), often led by international gambling operators.

Responsible gambling programs and policies take several forms. For instance, the Commonwealth of Massachusetts requires new casino operators to provide space for on-site responsible gambling information centers, branded as GameSense Info Centers, where staff members aim to teach patrons about important gambling concepts, correct gambling distortions, and encourage strategies for gambling within personally affordable limits (Massachusetts Gaming Commission 2014, 2018). MGM Resorts International (MGM) recently implemented GameSense Info Centers at its casino properties nationwide (MGM Resorts International 2018). Other responsible gambling initiatives include voluntary self-exclusion, which allows individuals to exclude themselves from gambling venues, and play management programs, which allow individuals to keep closer track of their spending and attempt to adjust their behavior accordingly (Ladouceur et al. 2017). Online gambling operators, who have greater access to players’ detailed gambling records, can promote more informed gambling behavior by providing personalized risk detection and feedback tools (Wood and Wohl 2015). Currently, there is mixed evidence regarding the public health impact of these and other responsible gambling initiatives (e.g., Boutin et al. 2009; Ladouceur et al. 2017; LaPlante et al. 2012).

Some critics of this approach to minimizing gambling harm contend that regulators and gambling operators cannot be participating stakeholders because their ultimate objective is always to maximize gambling revenues, and they have an inherent power imbalance over other

stakeholders, including individual gamblers, therapists, and consumer advocates (Hancock and Smith 2017a, b; Yani-de-Soriano et al. 2012). Some view responsible gambling initiatives as an attempt on the part of the industry to establish legitimacy rather than to meaningfully reduce harm (Leung and Snell 2017). Others critique the Reno Model—the first explanatory framework for responsible gambling (Blaszczynski et al. 2004)—for over-emphasizing individual gamblers' responsibility in minimizing gambling harm and, in so doing, providing justification for governments and operators to enact ineffective regulation (Hancock and Smith 2017a, b; Orford 2017). Despite such criticisms, responsible gambling programs and research continue to expand, with stakeholders from all segments—including regulators, operators, researchers, and clinicians—looking to improve best practices in education and prevention.

Role of Gambling Distortions and Positive Gambling Behavior

Several responsible gambling initiatives target gamblers' mistaken beliefs about gambling, and accumulating research emphasizes the value of targeting such beliefs. People who struggle with gambling problems often hold cognitive distortions, mistakenly believing that they can predict and even control gambling outcomes, even in objectively uncontrollable games such as slot machines (McInnes et al. 2014; Toneatto et al. 1997). These cognitive distortions can contribute to gambling involvement and associated gambling problems (Goodie and Fortune 2013; Ladouceur 2004; Yakovenko et al. 2016). As a result, correcting gambling distortions is a primary component of the clinical treatment of gambling disorder (Goodie and Fortune 2013).

Recently, some researchers have conceptualized responsible gambling not only as avoiding harmful gambling distortions and behaviors but also as (1) holding *positive* gambling beliefs (e.g., understanding that one's chances of winning do not improve after a loss) and (2) engaging in *positive* gambling behaviors (i.e., gambling within personally affordable time and money limits; balancing gambling with other recreational activities). Wood, Wohl, Tabri, and Philander (2017) define positive play as a multidimensional concept consisting of holding positive gambling beliefs and engaging in positive gambling behaviors. That is, with positive play, RG is approached from the player perspective: that players are gambling with the appropriate, correct beliefs and understanding of the gambling activity (Wood et al. 2017). Understanding the meaning of responsible gambling, imposing time and money limits on one's own gambling, gambling for pleasure and entertainment (not to win money), and balancing gambling with other leisure activities are all associated with low-risk gambling (Hing et al. 2017a, b).

Gamblers' Perceptions About Responsibility

Although the voices of advocates, researchers, and industry operators dominate discussions about industry operators' and governments' role in minimizing gambling harm, we know less about individual gamblers' own perceptions about responsibility for minimizing gambling harm. One national survey examined New Zealanders' beliefs about problem gambling and responsibility for minimizing harm (Abbott et al. 2015). This survey, conducted in 2012, followed a period of rapid gambling expansion. Most respondents (87%) believed that problem gambling represented a growing problem in their country, and most (85%) considered

that gambling operators should do more to help people who gamble to excess. Additionally, 76% of respondents believed that government should do more to help people with gambling problems. Perceptions about responsibility for minimizing harm are related to perceptions of corporate social responsibility (CSR). CSR has been defined as “economic, legal, ethical and discretionary (philanthropic) expectations that society has of organizations” (Carroll 1999, p. 283). Some studies have examined residents’ and gamblers’ perceptions of CSR within the gambling industry and relationships between these perceptions and support for the gambling industry (Lee et al. 2018; Tingchi Liu et al. 2014). Lee et al. (2018) studied Korean residents’ opinions about a local casino. They observed that residents’ sense of corporate social responsibility comprised the same four dimensions (i.e., economic, legal, ethical, and philanthropic) and that perceptions of the casino’s CSR were positively associated with perceived benefits of the casino, in addition to overall quality of life. In Macau, casino patrons’ perceptions of their casino’s CSR were positive associated with their brand preference and intentions to visit the casino (Tingchi Liu et al. 2014). These results suggest that in the gambling industry, as in other industries, customers are inclined to patronize businesses that they perceive to be socially responsible.

Brooks and Sparrow (2016) addressed the more basic question of whether gamblers tend to believe that gambling venues have a protective obligation (i.e., owe a duty of care to their customers). They recruited customers from seven bookmakers in an English city and studied participants’ perceptions about bookmakers’ duty of care. Generally, participants felt that bookmakers owe a duty of care not to exploit customers, particularly those with gambling problems, and not to accept bets from underage people. However, some participants questioned whether bookmakers can accurately identify—or should refuse to serve—people with gambling problems and people who are intoxicated. Participants in this study who emphasized gamblers’ personal responsibility were in agreement with the courts, which have generally ruled that individual gamblers, even those with gambling problems, are ultimately responsible for their own actions, and casinos have no legal requirement to stop even those with gambling problems from gambling (e.g., *Calvert v. William Hill Credit Ltd.* 2008; *Caesar’s Riverboat Casino LLC. v. Kephart* 2010).

The Current Study

We studied the extent to which gamblers hold a distributed sense of responsibility for minimizing such harm. We define a distributed sense of responsibility as the belief that that multiple stakeholders, in addition to gamblers themselves, have a responsibility to minimize gambling harm. Although gamblers appear to appreciate gambling operators’ CSR efforts and believe that operators have some duty to avoid exploiting customers, it remains unclear whether they believe that the gambling industry, government regulators, public health workers, and others should, at a more basic level, play any role in minimizing gambling harm. Perceptions related to a distributed sense of responsibility could have widespread implications. For instance, residents’ perceptions about responsibility for mitigating gambling harm could influence their support for mandating responsible gambling programs, such as onsite counseling services and self-exclusion programs, in new gambling venues. Those who believe that individual gamblers are solely responsible for their gambling behavior might be more reluctant to support public funding for research and public health initiatives to curb gambling problems.

Moreover, little is known about the extent to which perceptions of responsibility for mitigating gambling harm are in any way related to the experience of gambling problems. The 2012 New Zealand national survey hints at such an association, in that respondents classified as problem gamblers appeared more likely than other respondents to hold operators responsible for helping those who gamble to excess (Abbott et al. 2015).¹ Such perceptions could have implications for both the development and treatment of gambling problems. A common theme in existing legal cases is gamblers suing casino operators for not preventing them from gambling, particularly once they had developed gambling problems and/or enrolled in self-exclusion programs (Mangels 2011). Ceding responsibility to external actors for gambling behavior could put individuals at relatively high risk for gambling problems; indeed, locus of control is related to a variety of health behaviors, including substance use, eating, and physical activity (Haynes and Ayliffe 1991; Longo et al. 2000). In the wider addiction treatment field, developing a stronger sense of personal control and responsibility for the compulsive behavior (i.e., an internal locus of control) is a key therapeutic goal (Kirchner et al. 2013). At a broader level, societal perceptions of responsibility for minimizing gambling harm could influence those experiencing gambling problems, their sense of stigma, and their decisions to seek professional help. Perceived responsibility for an expression of addiction is positively correlated with (1) perceived controllability of that condition, (2) feelings of anger towards those experiencing the condition, and (3) intentions to impose punitive restrictions on those experiencing the condition (van Boekel et al. 2013).

This study had two primary goals. First, we sought to describe the extent to which a sample of casino gamblers holds a distributed sense of responsibility for minimizing gambling harms. We studied whether they believe that a variety of external stakeholders—including casino employees, government regulators, scientists/clinicians, and public health workers—hold responsibility for minimizing gambling harm, in addition to individual gamblers. Second, we explored the extent to which perceptions of responsibility for minimizing gambling harm were related to the experience of gambling problems.

Methods

Participants

Participants were 3748 individuals (55.3% men, 44.6% women) drawn from the MGM MLife loyalty program database. Table 1 provides their demographic characteristics. A total of 73,799 MGM customers received the survey invitation e-mail. Therefore, our survey response rate was 5.08%.

Procedures

During Fall 2017, prior to the rollout of GameSense at MGM properties, MGM's Direct Marketing team e-mailed potential participants and invited them to complete the survey. For some MGM properties, the Marketing team invited the entire MLife participant database; for others, they created a participant pool that was demographically representative and randomly selected potential participants from this pool for this study. The Marketing team sent the e-mail on behalf of "a team of researchers from the University of Nevada, Las Vegas's International Gaming Institute" who were "working with MGM to complete an evaluation of GameSense, a

¹ The report does not provide a statistical test of this association.

Table 1 Participant characteristics

	Number	Percent	Percent with missing values excluded
Gender			
Male	1540	41.1	55.3
Female	1244	33.2	44.6
Other	3	0.1	0.1
Missing	961	25.6	
Race			
White/Caucasian	2181	58.2	79.8
Black/African-American	236	6.3	8.6
American Indian/Alaska Native	34	0.9	1.2
Asian	125	3.3	4.6
Native Hawaiian/other Pacific Islander	18	0.5	0.7
Two or more races	64	1.7	2.3
Other	75	2.0	2.7
Missing	1015	27.1	
Ethnicity			
Hispanic/Latino	247	6.6	10.3
Not Hispanic/Latino	2151	57.4	89.7
Missing	1350	36.0	
Highest level of school			
Some high school or lower	22	0.6	0.8
High school graduate or equivalent	305	8.1	10.9
Some college	717	19.1	25.6
Associate's degree	351	9.4	12.5
Bachelor's degree	818	21.8	29.2
Graduate degree or higher	587	15.7	21.0
Missing	948	25.3	
Age (mean/SD)	55.2 (12.9)		

responsible gambling program.” Potential participants were told that they were eligible for the survey because they were MLife members. The Marketing team sent a follow-up invitation approximately 1 week after the initial invitation. The survey was hosted on the Qualtrics online survey platform. We provided no incentive.

Measures

The survey assessed customer views on a variety of concepts. We present findings regarding the following selected concepts:

Positive Play We administered the Positive Play Scale (Wood et al. 2017), designed to measure responsible gambling behavior and beliefs. The seven *behavior* items (e.g., “I considered the amount of TIME I was willing to spend BEFORE I gambled,” “I considered the amount of MONEY I was willing to lose BEFORE I gambled”) used a past-month timeframe and a scale from 1 (never) to 7 (always). We averaged participants’ responses across the seven items (Cronbach’s alpha = 0.86). The original Positive Play Scale *beliefs* items represented two categories of beliefs. The first of these is *gambling literacy*, which includes three items (e.g., “Gambling is not a good way to make money,”² “If I gamble more often, it

² In Wood et al. (2017), this item is worded, “Gambling is a good way to make money.” However, Wood and colleagues changed the framing of that item after publication, and we adopted their current framing for this study to allow for possible comparison across studies and sites.

will help me to win more than I lose” (reverse scored)) (Cronbach’s alpha = 0.51). The second beliefs category is *personal responsibility*. Wood et al. (2017) recommended four items for measuring beliefs about personal responsibility: “It’s my responsibility to spend only MONEY that I can afford to lose,” “I should be aware of how much MONEY I spend when I gamble,” “I should only gamble when I have enough money to cover all my bills first,” and “I should be able to walk away from gambling at any time.” We added two parallel TIME items: “I should be aware of how much TIME I spend when I gamble” and “It’s my responsibility to spend only TIME I can afford to take.” Cronbach’s alpha for this adapted sub-scale was 0.66. Finally, we added a third category of belief: *casino responsibility*. These four new items paralleled four of the personal responsibility items (e.g., “It’s the casino’s responsibility to help customers be aware of how much TIME they spend gambling,” “It’s the casino’s responsibility to help customers spend only MONEY that they can afford to lose”) (Cronbach’s alpha = 0.85). The 13 beliefs items ask participants to indicate how much they agree with each statement, on a scale from 1 (strongly disagree) to 7 (strongly agree). We averaged responses to create three sub-scale scores: *gambling literacy*, *personal responsibility*, and *casino responsibility*.

Understanding of Gambling Concepts Participants answered seven true/false questions (e.g., *When you almost win at a slot machine, a win is coming soon*; *A slot machine that has not paid out in a long time is “due” to pay out*; *Wins and losses on a slot machine happen purely by chance*), several of which Boutin et al. (2009) used in their study of casino gamblers accessing a responsible gambling information center. These questions measured participants’ understanding of the independence of random events (i.e., Monte-Carlo fallacy) and illusion of control (Leonard and Williams 2016). We scored responses and summed scores for each participant, for a possible range of 0–7.

Sum of Responsible Gambling Strategies We asked participants whether they in the past year used any of 12 responsible gambling strategies (e.g., *I took a break to cool off*; *I thought of gambling as fun, not as a way to make money*; *I did not “chase” my losses*). We included a “none of the above” option. We summed the number of strategies each participant reported using.³

Distribution of Responsibility for Minimizing Gambling Harm We presented the question stem, “Minimizing the harm that can come from gambling is the responsibility of...” and asked participants to select all that apply. Possible choices were individual gamblers, scientists and clinicians, MGM Resorts employees, government regulators, public health officials, casino industry lobbyists, public safety officials, and “other.” We examined the extent to which participants endorsed each option and, for each participant, we summed the number of responses endorsed. We considered participants with higher scores to have a more distributed sense of responsibility for minimizing gambling harm.

³ This question used a check-all-that-apply format, which presents some interpretation difficulty. It is possible that a participant who endorsed no options simply skipped the question, and that such a participant should be considered to have missing data. After some consideration, we elected not to set such responses as missing; if a participant failed to endorse any options, we set their response as zero. The same holds for the “Responsibility for minimizing gambling harm” question. The pattern of results was the same when we considered such participants to have missing data for these two questions.

Gambling Problems Participants completed the Brief Biosocial Gambling Screen (BBGS; Gebauer et al. 2010), a three-item screen for gambling problems derived from the DSM-IV Pathological Gambling criteria. The BBGS uses a past-year time frame and a yes/no response option format. Its three items cover *withdrawal* (i.e., “During the past 12 months, have you become restless, irritable, or anxious when trying to stop/cut down on gambling?”), *lying* (i.e., “During the past 12 months, have you tried to keep your family or friends from knowing how much you gambled?”), and *financial consequences* (i.e., “During the past 12 months, did you have such financial trouble as a result of your gambling that you had to get help with living expenses from family, friends, or welfare?”). Participants who endorse at least one criterion are considered to have a positive screen. In addition to coding participants according to whether they screened positive, we computed the sum of BBGS criteria endorsed (0–3).

Analytic Plan

First, to advance the first goal of this paper to describe the extent to which a sample of casino gamblers hold a distributed sense of responsibility for minimizing gambling harms, we determined the percent of participants who endorsed individual gamblers, government regulators, MGM Resorts employees, and other options. Second, to advance the second goal of this paper to explore the extent to which perceptions of responsibility for minimizing gambling harm were related to the experience of gambling problems, we used chi-square to examine the relationships between BBGS scores and participants’ distribution of responsibility for minimizing gambling harm. Similarly, in other univariate analyses, we examined associations between BBGS scores and Positive Play Scale sub-scores (i.e., *behavior*, *gambling literacy*, *personal responsibility*, *casino responsibility*), understanding of gambling concepts, and sum of responsible gambling strategies. Third, we used sequential logistic regression to examine the extent to which participants’ beliefs about responsibility for minimizing gambling harm (i.e., Positive Play Scale: *personal responsibility*, Positive Play Scale: *casino responsibility*, distribution of responsibility for minimizing gambling harm) add to the prediction of BBGS status above traditional measures of gambling distortions and responsible gambling behavior (i.e., Positive Play Scale: *gambling literacy*, understanding of gambling concepts, Positive Play Scale: *behavior*, sum of responsible gambling strategies). Fourth, we used the same variable entry order with hierarchal linear regression, keeping BBGS scores on their 0–3 scale rather than using a positive/negative screen dichotomy.

Results

Descriptive Analyses: Sense of Responsibility for Minimizing Gambling Harm

As Table 2 shows, most participants (74.6%) held individual gamblers responsible for minimizing the harm that can come from gambling. On the other hand, most participants did not hold other groups responsible. For example, 90.0% did not hold government regulators responsible for this task, 90.7% did not hold MGM Resorts employees responsible, and 96.0% did not hold scientists or clinicians responsible. Table 2 additionally shows the percent of participants who endorsed each option when we considered only participants with BBGS data.

Table 2 Percent of participants who endorsed each option in response to the question, “Minimizing the harm that can come from gambling is the responsibility of...”

	Among all participants (<i>N</i> = 3748)	Among all participants with BBGS data (<i>N</i> = 2976)	Among BBGS Positive participants (<i>N</i> = 464)	Among BBGS Negative participants (<i>N</i> = 2512)
Individual gamblers	74.6	93.9	92.0	94.3
Scientists/clinicians	<i>4.0</i>	<i>5.1</i>	<i>7.5</i>	<i>4.6</i>
MGM Resorts employees	<i>9.3</i>	<i>11.8</i>	<i>16.4</i>	<i>10.9</i>
Government regulators	<i>10.0</i>	<i>12.5</i>	<i>17.2</i>	<i>11.7</i>
Public health officials	7.7	9.6	12.1	9.2
Casino industry lobbyists	<i>9.0</i>	<i>11.3</i>	<i>18.8</i>	<i>10.0</i>
Public safety officials	<i>5.9</i>	<i>7.5</i>	<i>10.8</i>	<i>6.8</i>

Italicized rows represent significant differences between BBGS Positive and BBGS Negative participants (chi-square $p < 0.05$)

Univariate Analyses

We observed that 84.4% of the sample ($n = 2512$) screened negative on the BBGS and 15.6% screened positive ($n = 464$). This observation is based on only the 2976 participants who answered at least one of the BBGS questions. Looking at the BBGS items individually, the highest rate of endorsement was for the lying criterion (12.7%), followed by the withdrawal criterion (7.0%) and the financial difficulties criterion (2.3%). About 10.4% participants endorsed one criterion, 4.0% endorsed two criteria, and 1.2% endorsed three criteria.

With regard to participants' beliefs about who is responsible for minimizing gambling harm, we examined each potential response separately using chi-square. We found that BBGS Positive participants were more likely than BBGS Negative participants to hold five groups responsible: scientists/clinicians ($\chi^2(1) = 6.96, p < 0.01$), MGM Resorts employees ($\chi^2(1) = 11.30, p < 0.01$), government regulators ($\chi^2(1) = 11.11, p < 0.01$), casino industry lobbyists ($\chi^2(1) = 30.19, p < 0.01$), and public safety officials ($\chi^2(1) = 8.76, p < 0.01$). For example, BBGS Positive participants were nearly twice as likely to believe that casino industry lobbyists are responsible for minimizing gambling harm compared to BBGS Negative participants (18.8% vs. 10.0%). BBGS Positive and BBGS Negative participants were equally likely to hold individual gamblers and public health officials responsible for minimizing gambling harm. As Table 3 shows, BBGS Positive participants had higher sum scores on the distribution of responsibility scale.

Table 3 provides the results of remaining univariate tests. BBGS Positive had lower scores than BBGS Negative participants on five of seven predictors: Positive Play Scale: *behavior*, Positive Play Scale: *gambling literacy*, Positive Play Scale: *personal responsibility*, understanding of gambling concepts, and sum of responsible gambling strategies. BBGS Positive participants had higher scores than BBGS Negative participants on the Positive Play Scale *casino responsibility* sub-scale. Effect sizes across all seven predictors (measured with Cohen's d) ranged from 0.26 (sum of responsible gambling strategies) to 1.88 (Positive Play Scale: *behavior*).

Table 3 Results of univariate analyses

	BBGS Positive			BBGS Negative			<i>t</i>	df*	<i>d</i> **
	<i>N</i>	Mean	SD	<i>N</i>	Mean	SD			
Positive Play Scale: <i>behavior</i>	462	4.95	1.37	2504	6.38	0.87	-21.69	531.55	1.88
Positive Play Scale: <i>gambling literacy</i>	461	6.00	1.19	2511	6.27	1.01	-4.62	587.11	0.38
Positive Play Scale: <i>personal responsibility</i>	462	6.41	0.79	2512	6.70	0.53	-7.64	538.42	0.66
Positive Play Scale: <i>casino responsibility</i>	462	2.28	1.44	2511	1.94	1.27	4.78	599.85	0.39
Understanding of gambling concepts	450	5.09	1.56	2464	5.63	1.31	-6.82	568.68	0.57
Sum of responsible gambling strategies	464	4.11	2.36	2512	4.48	2.12	-3.15	608.34	0.26
Distribution of responsibility for minimizing gambling harm	464	1.75	1.58	2512	1.47	1.28	3.53	580.34	0.29

All differences are statistically significant at $p < 0.01$

*We used adjusted dfs when the two participant groups had unequal variance

**Absolute value of Cohen's *d*

Multivariate Analyses

BBGS Status Sequential logistic regression revealed a good model fit on the basis of the four risky gambling beliefs and behavior variables (block $\chi^2(4) = 524.73, p < 0.01$). Two variables emerged as significant predictors. Participants with lower scores on the Positive Play Scale: *behavior* sub-scale (OR = 0.36, 95% CI = 0.33–0.40, $p < 0.01$) and less understanding of gambling concepts (OR = 0.84, 95% CI = 0.77–0.92, $p < 0.01$) were more likely to be BBGS Positive. The addition of beliefs about responsibility for minimizing gambling harm improved the prediction of BBGS status (block $\chi^2(3) = 18.11, p < 0.01$). Two responsibility variables emerged as additional significant predictors. For each additional group perceived to be responsible for minimizing gambling harm, participants were 11% more likely to be BBGS Positive (OR = 1.11, 95% CI = 1.02–1.20, $p < 0.05$). And, for each 1-unit increase in Positive Play Scale: *casino responsibility*, participants were 14% more likely to be BBGS Positive (OR = 1.14, 95% CI = 1.04–1.35, $p < 0.05$). See Table 4.

Table 4 Summary of regression analyses predicting BBGS Positive status. ($N = 2763$)

	Step χ^2	Step df	OR	95% CI lower	95% CI upper
Step 1	524.73*	4			
Positive Play Scale: <i>behavior</i>			0.36*	0.33	0.40
Positive Play Scale: <i>gambling literacy</i>			1.05	0.94	1.19
Understanding of gambling concepts			0.84*	0.77	0.92
Sum of responsible gambling strategies			1.06	1.00	1.12
Step 2	18.11*	3			
Positive Play Scale: <i>behavior</i>			0.37*	0.33	0.41
Positive Play Scale: <i>gambling literacy</i>			1.09	0.96	1.23
Understanding of gambling concepts			0.84*	0.77	0.92
Positive Play Scale: <i>personal responsibility</i>			0.99	0.81	1.21
Positive Play Scale: <i>casino responsibility</i>			1.14*	1.04	1.25
Distribution of responsibility for minimizing gambling harm			1.11*	1.02	1.20

OR odds ratio, 95% CI 95% confidence interval

* $p < 0.05$

BBGS Score We observed the same pattern when we considered the sum of BBGS questions endorsed as the dependent variable, rather than positive/negative status. The four risky gambling beliefs and behavior variables together explained nearly 30% of the variance in BBGS scores ($R^2 = 0.27$, $F(4, 2898) = 266.20$, $p < 0.01$). Participants with lower scores on the Positive Play Scale: *behavior* sub-scale ($\beta = -0.50$, $p < 0.01$) and less understanding of gambling concepts ($\beta = -0.08$, $p < 0.01$) answered more BBGS questions positively. The addition of beliefs about responsibility for minimizing gambling harm slightly but significantly improved the prediction of BBGS score (R^2 change = 0.01, F change (3, 2895) = 11.51, $p < 0.01$). The same two responsibility variables emerged as additional significant predictors: distribution of responsibility for minimizing gambling harm ($\beta = 0.05$, $p < 0.01$) and Positive Play Scale: *casino responsibility* ($\beta = 0.07$, $p < 0.01$). Participants who had a more distributed sense of responsibility for minimizing gambling harm, and those who had higher scores on Positive Play Scale: *casino responsibility* scale, answered more BBGS questions affirmatively. See Table 5.

Discussion

Two goals guided this study. First, we sought to describe gamblers' sense of responsibility for minimizing gambling harm. Using a sample of gamblers recruited from a customer loyalty database, we observed that nearly three quarters of participants held individual gamblers responsible for minimizing gambling harm. However, fewer than 10% of participants held other groups—including scientists/clinicians, MGM Resorts employees, public health officials, casino industry lobbyists, and public safety officials—responsible for this task. Ten percent of participants saw a role for government regulators in minimizing gambling harm. Rates were higher across all stakeholders when we excluded participants who did not respond to gambling harm questions (i.e., the BBGS), suggesting that some participants had skipped the responsibility section of the survey instead of intentionally failing to endorse particular options. However, the general pattern of results was the same: high endorsement of individual gamblers and relatively low endorsement for the remaining stakeholders.

Table 5 Summary of regression analyses predicting BBGS score

	R^2	R^2 change	F change	df	β
Step 1	0.27	0.27	266.20*	4, 2898	
Positive Play Scale: <i>behavior</i>					-0.50*
Positive Play Scale: <i>gambling literacy</i>					-0.01
Understanding of gambling concepts					-0.08*
Sum of responsible gambling strategies					0.00
Step 2	0.28	0.01	11.51*	3, 2895	
Positive Play Scale: <i>behavior</i>					-0.49*
Positive Play Scale: <i>gambling literacy</i>					0.01
Understanding of gambling concepts					-0.07*
Sum of responsible gambling strategies					0.00
Positive Play Scale: <i>personal responsibility</i>					0.00
Positive Play Scale: <i>casino responsibility</i>					0.07*
Distribution of responsibility for minimizing gambling harm					0.05*

* $p < 0.01$

These findings might have important public policy implications. Though governments and gambling operators increasingly espouse the viewpoint that they share some responsibility for mitigating gambling harm (e.g., American Gaming Association 2018; Australian Government Department of Social Services 2018; Massachusetts Gaming Commission 2018; Singapore Minister for Social and Family Development 2016), gamblers in our sample were unlikely to attribute responsibility to stakeholders other than themselves. Participants' tendency not to hold government regulators responsible for reducing gambling harm mirrors US public perception of the government's role in other public health matters. For instance, in a 2013 survey of American adults, the Pew Research Center found that while 63% of respondents believed that obesity has consequences for society beyond the personal impact on the individual (Pew Research Center 2013), only 42% believed that government should play a role in reducing it. Support was particularly low for government restrictions, such as limits on the size of sugary soft drinks (which only 31% supported). More respondents supported initiatives that give consumers tools to make informed decisions. For instance, 67% supported calorie counts on restaurant menus. Respondents were more likely to support government efforts to prevent *childhood* obesity (Pew Research Center 2011), presumably because they saw children as less capable of taking on this responsibility themselves. The implication for gambling is that the public will support responsible gambling initiatives designed to promote informed decisions about how, and how much, to gamble (e.g., GameSense, budgeting tools, public education campaigns). Given the stigma associated with gambling disorder (Baxter et al. 2016; Hing and Russell 2017; Hing et al. 2016), we suggest that when programs designed to promote informed choice *are* implemented, they should be marketed in a way that makes it clear they are available to everyone, not just those experiencing gambling problems.

Our second goal was to explore the possibility that a gambler's sense of responsibility for minimizing gambling harm might be related to his or her experience of gambling problems. As we reviewed earlier, research within the wider addiction treatment field indicates a role of external locus of control in addictive behavior. We observed that holding a more distributed sense of responsibility for minimizing gambling harm was associated with scoring positive on the BBGS and that the breadth of a participant's sense of responsibility for minimizing gambling harm, combined with scores on the Positive Play Scale: *casino responsibility* subscale, added to the prediction of BBGS status and scores beyond well-established cognitive and behavioral risk factors. Interestingly, our BBGS Positive participants tended to hold individual gamblers responsible for minimizing gambling harm, but this view did not distinguish them from BBGS Negative participants. What did distinguish BBGS Positive participants was a stronger sense of casino responsibility and a more distributed sense of responsibility overall. These results echo findings of the 2012 New Zealand national survey which, as mentioned previously, suggested an association between problem gambling status and opinions about gambling providers' responsibilities for minimizing harm (Abbott et al. 2015). If gamblers assume that casinos and other stakeholders will prevent them from experiencing excessive financial loss and other gambling problems, these perceptions might translate into riskier, less controlled gambling behavior. A prospective study could explore the extent to which a sense of distributed responsibility precedes gambling problems.

The observation of such distributed responsibility for gambling-related problems provides an opportunity to explore the durability and robustness of this phenomenon. It would be useful to determine if the relationship between experiencing harm and holding a distributed sense of responsibility for reducing that harm emerges when considering other intemperate behaviors. Should similar patterns of distributed

responsibility be evident for other such activities, it might be possible to develop an evidence-based cognitive model, which ultimately could inform prevention and intervention efforts. Future research could examine whether individuals tend to maintain a distributed sense of responsibility for health, generally. For instance, an individual might hold government and industry partly responsible for reducing harm associated with obesity, smoking, drinking, and prescription drug use. Or, these beliefs might be closely tied with an individual's experience with particular behaviors. For instance, an individual who smokes might be firmly opposed to government bans on public smoking but in favor of restrictions designed to reduce obesity, risky drinking, and prescription drug misuse.

Our own data provide preliminary support for the view that perceptions about responsibility are closely tied to individual experience. Smoking research tells a similar story. Currently in the USA, smokers are less likely to favor a public smoking ban than non-smokers (31% vs. 63%) (Saad 2017). However, there is substantial variation among smokers, based on their personal experiences and concerns. Compared to smokers who plan to keep smoking, those who want to quit are more likely to support a public smoking ban (Hersch 2005), potentially because they see bans, taxes, and other government initiatives as externally imposed forms of discipline that might help them quit. Similarly, those who want to limit their gambling but are struggling to do so might be more likely to support government and industry initiatives like voluntary self-exclusion because they offer an external form of control. Such a mechanism could explain why, in the current study, some of the BBGS Positive gamblers were more likely to maintain a distributed sense of responsibility for minimizing gambling harm.

Notable limitations of this study include in the low response rate and our use of participants from only one gambling operator's loyalty card database. Both of these features limit the generalizability of our findings. In addition, loyalty card holders as a group might be more highly involved in gambling, and/or more invested in gambling perks, than gamblers who do not hold loyalty cards, though to our knowledge, no studies have compared these groups on gambling involvement, brand loyalty, or other domains. We administered a brief screen rather than a full diagnostic assessment of gambling disorder. The Positive Predictive Value of the BBGS is 0.36 (Gebauer et al. 2010), indicating that if comprehensively evaluated, about one third of individuals who screen positive on the BBGS would meet full diagnostic criteria. (We note that the frequency with which participants endorsed the individual BBGS items—which was highest for the lying criterion and lowest for the financial consequences criterion—mirrors that observed in the general US population; Gebauer et al. 2010). In the interest of minimizing participant burden, we did not measure gambling frequency of other aspects of involvement (e.g., number of games played, typical amount spent). This information would be useful for studying whether gamblers who hold a more distributed sense of responsibility for minimizing gambling harms gamble in riskier ways than others. Finally, the cross-sectional nature of this study precludes conclusions about a causal relationship between responsibility beliefs and gambling problems.

In summary, operators worldwide increasingly are implementing programs designed to reduce gambling harm. Scientists and program designers must evaluate these strategies rigorously to determine their acceptability, safety, and effectiveness. The current study describes how a sample of gamblers perceives responsible gambling efforts. These gamblers viewed individual gamblers as most responsible for minimizing harms

associated with gambling and were much less likely to hold other groups accountable, despite recent government mandates and industry initiatives to promote responsible gambling. We documented that these perceptions relate to gamblers' experience of gambling harm. These results provide a rationale and framework for exploring causal pathways between perceptions of responsibility and experiencing harm and, perhaps eventually, interventions designed to reduce gambling problems.

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Compliance with Ethical Standards

All study procedures were approved by the University of Nevada, Las Vegas Institutional Review Board and were in accordance with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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