brief report

House-edge information yields lower subjective chances of winning than equivalent return-to-player percentages: New evidence from support forum participants

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Abstract

Information messages that communicate the average cost of play are a helpful consumer protection tool in gambling. In Australia and the United Kingdom, cost of play information is typically communicated via the "return-to-player" statistic, e.g., "This game has an average percentage payout of 90%." Through a sample recruited through a gambling support forum ($n = 49$), this paper reports how house-edge information (e.g., "This game keeps 10% of all money bet on average") is associated with lower perceived chances of winning, as opposed to equivalent return-to-player information. Accordingly, this study also extends the literature on optimal gambling messaging to a group of support forum users.

Keywords: Replication, warning labels, gambling, gambling treatment, problem gamblers

Résumé

Les messages destinés à renseigner les joueurs sur le coût moyen des activités de jeux de hasard constituent une mesure de protection du consommateur utile. En Australie et au Royaume-Uni, cette information est habituellement transmise sous forme de statistique précisant le « taux de retour », par exemple : « Ce jeu a un taux de retour de 90 %. » Cette étude montre, sur la base d'un échantillon recruté au sein d'un forum de soutien aux joueurs (n=49), que les messages axés sur la marge de profit des maisons de jeu (par ex. « La maison conserve en moyenne 10 % des sommes misées ») ont une incidence négative sur la perception des chances de gagner, contrairement

aux messages sur le taux de retour. Nos conclusions ajoutent aux connaissances sur la nature des messages à adresser aux membres des groupes de soutien aux joueurs.

Introduction

Information messages that communicate the average cost of play are a helpful consumer protection tool in gambling (Eggert, 2004). In Australia and the United Kingdom, cost of play information is communicated via the "return-to-player" statistic, e.g., "This game has an average percentage payout of 90%" (Beresford & Blaszczynski, 2019; Collins, Green, d'Ardenne, Wardle, & Williams, 2014). In this example, the payout percentage means that, over the game's complete cycle, £90 will be paid out for every £100 bet (Collins et al., 2014). A recent paper showed that gamblers perceive a lower chance of winning if this information is restated as equivalent "house-edge" information, e.g., "This game keeps 10% of all money bet on average" (Newall, Walasek, & Ludvig, 2020). A second study in that paper found that 66.5% of gamblers correctly understood this house-edge information, compared to only 45.6% given return-to-player information (11.8% of participants in that study were current problem gamblers). Taken together, these results suggest that house-edge information makes gamblers better informed and more aware of the average cost of play than does return-to-player information.

However, these results are based on crowdsourced samples of gamblers (Palan & Schitter, 2018), and may in fact not necessarily represent gamblers who have sought help for gambling-related problems. This limitation is particularly relevant to the study on gamblers' perceived chances of winning. A significant interaction effect ($p =.021$) between information type and the Problem Gambling Severity Index (PGSI) was found (Newall et al., 2020), suggesting this effect of information type may be less pronounced for the problem gambler. Therefore, the present study conducted a replication of Newall et al.'s Experiment 1, using a sample of participants recruited from an online gambling support forum, provided by the UK's largest supplier of gambling treatment and support. Users of the GamCare forum are likely those who are either currently experiencing gambling problems, are affected by another person's gambling, or who have experienced gambling problems in the past.

Method

Participants

In total, 49 participants provided responses to at least the three core questions in the study between May 2019 and January 2020 via postings on the website and social media accounts of gamcare.org.uk (62 people started the experiment; completion rate 79%). Five participants dropped out before providing demographic information, but their data

were retained for the main analysis. Participants reported a mean age of 41.8 years, and 36.4% were female ($n = 44$). The study was a direct replication of Newall et al.'s Experiment 1, with the exception that this sample was not asked for their past year's gambling nor to complete the PGSI. These two shifts were because of participants' diverse potential backgrounds, the likelihood of collecting a small sample size, and the need to maximize engagement with this non-incentivized experiment. Ethical approval was obtained from the University of Warwick human ethics committee.

Procedure

Participants were given a brief introduction to the relevant context of online gambling (see Appendix). Participants were then randomly assigned to two conditions. Those in the return-to-player condition ($n = 26$) saw a message stating that: "This game has an average percentage payout of [90%]." Participants in the house-edge condition ($n = 23$) saw equivalent information: "This game keeps [10%] of all money bet on average." Participants in each condition gave their perceived chances of winning on a 7-point Likert scale (see Appendix). Each participant gave three perceived chances of winning, for information messages corresponding to a return-to-player of 85%, 90%, and 95% (or house-edges of 15%, 10%, and 5%). These percentages correspond roughly to existing norms for gambling products internationally (Harrigan & Dixon, 2009; Schwartz, 2013; Woolley, Livingstone, Harrigan, & Rintoul, 2013).

Participants then completed an attention-check trial, corresponding to an implausibly low return-to-player of 5% (or house-edge of 95%). All participants provided a perceived chance of winning on this attention-check trial that was not higher than any of their three previous trials, suggesting that participants were paying attention to the task and understood it. Participants in both conditions were then given some return-to-player information and asked to provide the correct definition from four potential answers as a measure of gambling literacy (see Table 1 for further details).

Materials and data for this study can be accessed from https://osf.io/3pdnw/.

Table 1
Breakdown of responses to the measure of gambling literacy

Response*	Return-to-player	House-edge	Overall
"90% of people who play this game will win something."	20.8%	28.6%	24.4%
"This game will give out a prize 9 times in 10."	8.3%	0.0%	4.4%
"If you bet £1 on this game you are guaranteed to win 90p."	4.2%	0.0%	2.2%
Correct response: "For every $100 bet on this game about $90 is paid out in prizes."	66.7%	71.4%	68.9%

Note. *After the attention-check trial participants in both conditions were given some return-to-player information, "This game has an average percentage payout of 90%" and were asked to provide the correct response out of four potential alternatives.

Figure 1

Participants perceived a higher chance of winning under return-to-player than equivalent house-edge information. A return-to-player of 90% corresponds to a house-edge of 10%. Perceived chances of winning: 7 = Very high chance of coming out ahead, 4 = Neither high nor low chance of coming out ahead, 1 = Very low chance of coming out ahead. Error bars represent 95% confidence intervals.
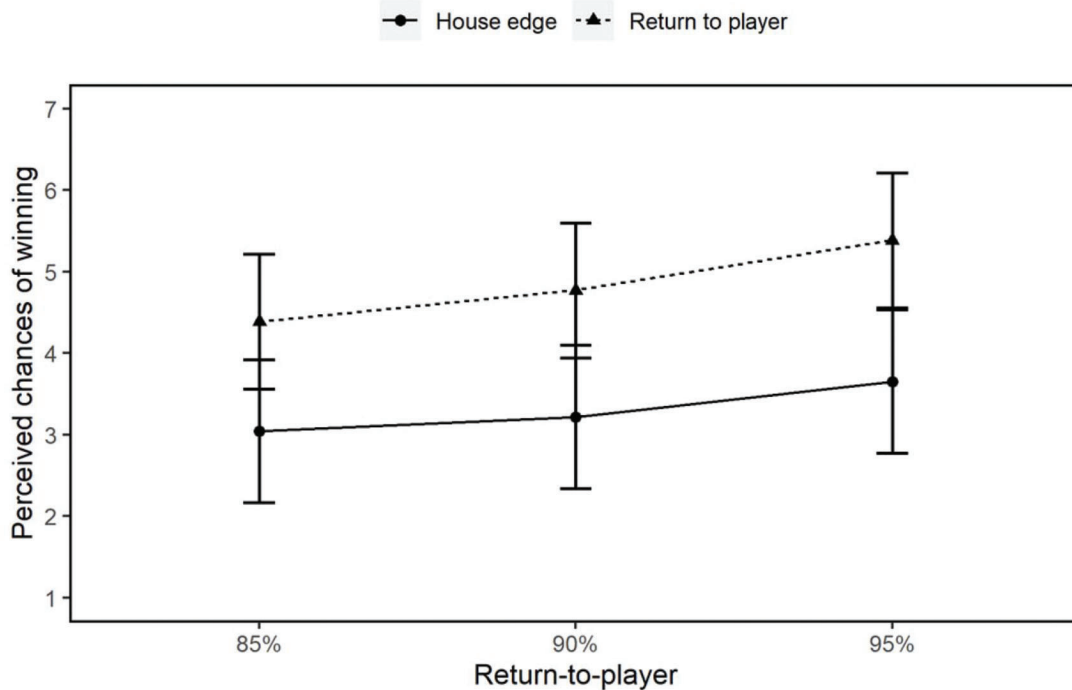
Results and Discussion

Participants correctly judged the higher payout percentages as yielding a higher chance of winning, $F(2, 94) = 20.63$, $p < .001$. As can be seen in Figure 1, participants given return-to-player information consistently reported a higher perceived chance of winning than did those participants who were given equivalent house-edge information, $F(1, 47) = 6.98$, $p = .011$. The interaction between payout rate and condition was non-significant $F(2, 94) = 1.19$, $p = .308$, meaning that this main effect occurred reliably over the range of payout values. Finally, 68.9% of participants ($n = 45$) provided the correct definition of the return-to-player information (which did not vary across group, see Table 1)—higher than had previously been observed (Newall et al., 2020). The most commonly given incorrect answer was "90% of people who play this game will win something," (24.4% of the sample). PGSI and accuracy of this measure have been previously found to be positively correlated (Newall et al., 2020), suggesting that this study successfully recruited participants with personal experience of gambling. This study therefore extended the literature on optimal gambling messaging to a vulnerable group.

This study came with the following limitations. It did not ask participants about their personal role in gambling (current problems, past problems, or affected other),

and the sample size would have been too small to perform sub-group analyses in any case. The study was also limited to self-report data, and did not include behavioral outcomes. Perceived chances of winning were subjective, so whether the lower perceived chances of winning with house-edge information is more accurate than the higher perceived chances from return-to-player information could not be determined.

House-edge information yielded lower subjective chances of winning in this group than return-to-player information, a result which replicated previous results using current gamblers (Newall, Walasek, & Ludvig, 2020). This study therefore provided supportive evidence with a sample of participants from a gambling support forum of the potential gain from replacing return-to-player information with house-edge information (Eggert, 2004).

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Appendix

Screenshot of Main Experimental Instructions: Example of the Return-to-Player (90%) Condition.

Imagine that you are a member of an online casino. You have played many of this casino's online games over the last year.

You know that gambling games are designed so that most gamblers lose money over time. Only a percentage of all the money bet gets paid back out as winnings. Or, in other words, that casino games come with a house edge.

You are about to start playing a new online casino game, when you read the following information about the game:

"This game has an average percentage payout of 90%."

How does the above information affect your perceived chances of winning?

My chances of winning are...

Very high chance of coming out ahead

High chance of coming out ahead

Somewhat high chance of coming out ahead

Neither high nor low chance of coming out ahead

Somewhat low chance of coming out ahead

Low chance of coming out ahead

Very low chance of coming out ahead