Author’s response to reviews

Title: The Impact of Pop-up Warning Messages of Losses on Expenditure in a Simulated Game of Roulette: A Pilot Study

Authors:

Paul McGivern (P.McGivern@derby.ac.uk)
Zaheer Hussain (z.hussain@derby.ac.uk)
Sigrid Lipka (s.lipka@derby.ac.uk)
Edward Stupple (E.J.N.Stupple@derby.ac.uk)

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Responses to reviewers’ comments

Jason Landon (Reviewer 1): Thank you for the opportunity to review this work.

Comment 1: The manuscript reports a small pilot study of expenditure specific warning messages to gamblers in a simulated Roulette task. Whilst the study is specifically placed as a pilot study, I am not convinced that the work adds to the current literature in a substantial enough way to warrant publication. The notion of expenditure based pop-up messages is not unique, and experimental studies have shown they have promise with Electronic Gaming Machines (EGMs), variants of which are generally agreed on as potentially the most harmful form of gambling, due to their more continuous nature etc. Here in New Zealand, the Government has mandated a pop-up message of that nature on all EGMs, and our research in live venues (with admitted limitations) suggests moderate harm-minimisation effects at best (Palmer du Preez et al 2016), and a key issue seems to be gamblers doubting the accuracy of the information provided (Landon et al., 2016).

Author’s response: The presented experiment is a simulation of an online casino environment rather than an EGM/FOBT. We have amended the first paragraph of the background section to remove any confusion. The findings may generalise to roulette based EGMs, but the methods were focused on an online presentation. The messages were also factually accurate with regards to participant expenditure. We have added some clarification to this on page 4.
Comment 2: It might be that Roulette is a more appropriate gambling task for these interventions, and the paper could be positioned more along those lines - given the discrete trials etc - but of course this would not be viable for 'real' Roulette.

Authors’ response: Thank-you for the comment. The research is not aimed at real roulette, and as such the pop-ups described in the research could be implemented in an online casino environment.

Comment 3: I think the authors could have done more to establish a more specific rationale for the work, and distinguish the approach from previous studies - many have evaluated pop-up messages based on expenditure, and in general the literature has moved beyond simple expenditure based messages. The NZ mandated intervention for example, is simply based on time on device and expenditure, but was only informed by a few very early papers in this area.

Authors’ response: Thank you for your comment. Our specific rationale was to deliver bespoke pop-up messages tailored to the individual expenditure and to demonstrate the efficacy of those compared to alternative forms of messaging. This was in a simulated online roulette game.

Comment 4: My second concern, and ultimately the more problematic one, is that the results seem to be based on a single bet in the trial immediately following the message. I am really not sure what to make of that - there are many ways to interpret it.

But put simply, there isn't any way to assess (from the data presented, and from the reading what was collected) whether the effect was a one-trial transient effect, or there was a more long standing effect on betting behaviour after the message.

If betting returned to the baseline levels, then it is hard to argue that there is any harm-minimisation potential. The manuscript would be strengthened greatly if the authors could include additional data from after the messages - was there any sustained effect on betting patterns, or was there any increased likelihood of ending the gambling session earlier (this might not have been an option in this task). The authors mention this "snapshot of single betting decisions" as a limitation, however in my opinion it is a rather profound one, meaning that one cannot draw any firm conclusions, nor is there a clear implication of the results - beyond a partial replication and collecting more extensive data.

Authors’ response: The goal of the present research was to determine whether there were specific benefits for a bespoke expenditure message during open bets (our dependent variable is an aggregation of four open bets during the gambling session).
To do this we controlled the betting environment as much as possible to ensure that participants were consistently on losing streaks and bets were measured at controlled intervals. This controlled approach loses some ecological validity and makes it difficult to extrapolate the findings to longer time frames or overall harm minimisation potential. However, this study was a pilot test of concept which showed that there was an effect on expenditure and there is therefore merit in further investigation of bespoke messages for longer term behaviours.

Sari Castrén (Reviewer 2): Reviewer's report

It was a pleasure being invited to review a manuscript Title: "The Impact of Pop-up Warning Messages of Losses on Expenditure in a Simulated Game of Roulette: A Pilot Study" for BMC Public Health. This is an interesting and important topic on much needed topic of responsible gambling tools. This study's aims were to test the impact of expenditure-specific warning messages on subsequent gambling expenditure following exposure to two different warning message contents and one message containing no warning as a control message. 45 university students participated in this study. Expenditure-specific warning messages about current losses were more effective than generic messages for reducing expenditure.

Overall this manuscript is clear, specifically introduction section, where authors have addressed the earlier research creditable well. This pilot study gives an important contribution to the field of gambling research and suggestions to the further research in regards RG tools content.

Comment 1: I have few points and questions to the authors to address prior to publication of this manuscript. Look forward seeing this manuscript published. Title - Title reflects accurately the content of the paper. Abstract will be complete and stand-alone, when statistical values are added, when significant.

Authors’ response: We have added the p-values for the significant findings to the abstract.

Comment 2: Introduction is well written and flows soundly. Methods and results - This section would benefit some re-organizing and clarifications. For me it would be logical order to report, (please see also author guidelines). Ethics and study design; Study population (you may include description of recruitment process in detail here)

Authors’ response: Methods has been re-organised, and details are on page 6.
Comment 3: Procedure: This is my main question: it looks to me that authors use PGSI measure as inclusion criteria with no exclusion criteria. There are some questionable interpretations regarding scoring of the scale (ref 34), please see the scoring key below and explain what was your inclusion criteria based on Ferris and Wynne scoring key? Or if you somehow modified the severity levels (low, moderate- level gambling scores) please give it a clear rationale and provide supportive reference to do so. In its current state it is unclear what was a scoring. Please see the PGSI scoring here: PGSI - Total your score. The higher your score, the greater the risk that your gambling is a problem. Score of 0 = Non-problem gambling. Score of 1 or 2 = Low level of problems with few or no identified negative consequences. Score of 3 to 7 = Moderate level of problems leading to some negative consequences. Score of 8 or more = Problem gambling with negative consequences and a possible loss of control.

Authors’ response: Thank-you for this suggestion. We have added further detail about the PGSI scores for our sample on page 6 and report participant numbers in each of the categories for the PGSI.

Comment 4: In addition, please report PGSI Cronbach Alpha.

Authors’ response: We added this on page 6. The nine-item Problem Gambling Severity Index (PGSI) [34] has been shown to be a robust measure (Cronbach’s Alpha, α = 0.84)

Comment 5: Perhaps adding PGSI - measure and scoring key as supplementary form, would be beneficial to those readers who are not familiar with the scale. Your sample (PGSI) mean score was 0.85. Please specify when reporting how many (N) participants were categorized in each severity group rather than using percentages, or you may use both. What is the timeline you used in PGSI: lifetime or past 12 months? Please state that and note that certain timeline may have some limitations, thus address that in the discussion section, if relevant. Authors state: "While a score of zero on the scale would not indicate any behavioural problems, participants in this category may still be frequent or 'heavy' gamblers with regards to time and money spent gambling." Please support your statement with relevant reference. Description of your sample as a Table 1 is highly recommended (age (mean and SD missing), severity, gender).

Authors’ response: To clarify we have added the following text to page 6: Using the PGSI, a score of 0 = Non-problem gambling, a score of 1 or 2 = Low level problems with few or no identified negative consequences, scores between 3 and 7 = Moderate level of problems leading to some negative consequences. Scores of 8 or more = Problem gambling. Based on the PGSI, the sample were: Non-problem gamblers (n = 31), Low-level problem gamblers (n = 9), and Moderate level problem gamblers (n = 5). There were no problem gamblers (score of 8 or more
on the PGSI) in the study. The overall mean PGSI score was 0.85 (SD = 1.43). Participants responded to each statement of the PGSI framed within the last 12 months.

Comment 6: Materials: Is it possible to add picture of the actual screen in all three conditions, that would be really helpful to the reader to understand and see what was done.

Authors’ response: We have added screen shots of the roulette task to pages 8 and 9.

Comment 7: Statistical analysis. Results Table 2 is informative. It would be interesting and informative to know, perhaps adding Table 3: were there differences in genders, age, low or moderate gamblers, if yes please discuss, if no please state that.

Authors’ response: Unfortunately demographic information beyond that already reported was not collected. However, additional contrasts were made between male and female participants, but no differences were found (p.10). Follow-up analyses examined the impact of different warning message types on Total Expenditure Amount between males and females for each group; also between and Non-problem and Low-level problem gamblers (in accordance with the PGSI). The analyses found no significant differences in Total Expenditure Amount by message type for Gender or PGSI categorisation (p>.05).

Comment 8: Discussion: Well written discussion section. Authors have addressed limitations of the study and suggestions to future research. References - Appropriate.

Samantha Thomas (Reviewer 3):

Comment 1: This paper addresses whether pop up warnings on gambling machines (such as FOBTs) may be an effective Responsible Gambling tool. The study looks specifically at whether expenditure warnings are effective. The population for this study was a lab based setting with university students.

Authors’ response: To clarify, the study focuses on a simulation of an online casino. We have amended the first paragraph of the background to clarify the focus on online roulette.

Comment 2: The key problem with this paper is the underlying assumption that Responsible Gambling measures are an impactful public health tool. Responsible Gambling as a concept has been significantly critiqued by academics in public health. I was very surprised (given that this is
a Public Health journal) to not see any discussion of these critiques. Responsible Gambling measures which aim to encourage individual responsibility have been critiqued as being ineffective in preventing or reducing gambling related harm.

Authors’ response: Thank-you for this comment. While we agree that there are important public health interventions to be implemented, we also argue that interventions at the level of the individual are an integral part of any behaviour change strategy (see discussion section). Thus, examining the possibility of more effective individual interventions is the focus of our paper and would be complimentary to rather than instead of any public health initiative.

Comment 3: There is also very limited discussion of how this paper sits within a broader public health framework of gambling harm reduction and prevention. It seems to have been written more for the benefit of gambling operators? The researchers argue that ultimately if gambling operators want to 'protect customers without compromising enjoyment or profit' then measures such as pop ups should be used. There is a flaw in this argument from a public health perspective. Given that losses are linked with harm, effective measures to reduce harm will necessarily impact on the profits of the gambling industry. So surely the fact that you are arguing for measures that don't impact on profit is somewhat problematic?

Authors’ response: An effective responsible gambling approach may reduce profits or result in smaller but longer-term profits from individuals.

Comment 4: Public health research to date has argued for reduced density of machines, caps on max stakes (or losses per hour) as effective public health responses for harm prevention. Importantly, as part of a comprehensive public health approach, messaging should be designed and tested independently of industry, and regulated by governments (as per tobacco control initiatives).

Authors’ response: This study independently tested messaging with no influence from the gambling industry or any other funder and was developed by the team of researchers.

Comment 5: As such, it is hard to see how this paper fits into a broader public health approaches relating to gambling harm prevention and reduction.

Authors’ response: We do not see pop-up messaging as an alternative to public health initiative, instead they are focused on the individual rather than the overall population. We have amended the discussion on page 12 to reflect this.
Comment 6: As per other journals, it is important for the authors to declare any funding sources for gambling research in the last 3 years. There is no information that I could easily locate regarding the funding source for this study.

Authors’ response: We can confirm that we did not receive funding from the Gambling industry or any other funder.