

Realistic Simulations and Nudging Gambling Policy: Commentary on Graydon et al., (2018)

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Highly realistic slot machine simulations are a powerful way to test the impact of gambling structural features. 'Nudging' may provide a framework to mitigate the effects of Losses Disguised as Wins and, more broadly, to translate research findings into gambling policy.

Graydon and colleagues (1) add to a growing body of research on Losses Disguised as Wins (LDWs) as a feature of modern, multi-line slot machines. Their paper makes a valuable contribution to our thinking about laboratory research and policy approaches for slot machine structural characteristics. Building on their past work showing subjective, cognitive, and physiological effects of LDWs, this new study reports a behavioural effect: the group with gambling problems displayed greater persistence at an intermediate rate of LDWs. Given the negative expected value of gambling, persistence in play has direct financial consequences for gamblers. We note that the 12% LDW frequency in that 'sweet spot' condition approximates the rate of 11% that we have observed in an authentic slot machine used in our most recent study (2).

One crucial element of their paper is that their laboratory slot machine is exceptionally realistic. Past gambling research has typically used rudimentary slot machine simulators that are easily discriminated from real machines. Other research has used authentic slot machines housed

in a lab environment, leading to trial and session outcomes that are uncontrollable and thus vary across participants – for example the rates of rarer events such as ‘free spin’ bonus rounds (3). Graydon et al. placed their programmed simulator inside a genuine slot machine cabinet, so that the participant interacts with the game as they might in the field. The theme, pace, and audiovisual feedback appear entirely realistic. Sophisticated simulators like this one offer new opportunities for balancing experimental control and ecological validity.

This view contrasts with a recent systematic review of research evaluating ‘responsible gambling’ interventions, wherein Ladouceur and colleagues (4) stipulated that studies must have assessed real gamblers in real gambling environments. This ecological requirement may be misplaced for research on the impact of structural characteristics, where the *manipulation* of specific game features is vital. Even if slot machine manufacturers and gambling operators were willing to allow researchers to manipulate game settings on the casino floor, many features of these games are ordinarily inter-dependent. For example, in a previous study of in-game immersion (5), the manipulation of multi-line (vs single-line) settings that generated LDWs was unavoidably confounded with overall bet size, which could also affect immersion. The relative influence of different structural characteristics in slot machine addiction is not known (6), and disentangling these influences will require a degree of experimental control that we believe is best attained in the laboratory.

As the evidence for the negative effects of LDWs accumulates, how should gambling regulators respond? The zeitgeist in public health and policy-oriented research emphasizes ‘nudging’ consumers to make better, healthier choices (7). Nudges influence behaviour without limiting the ability to choose alternative options or significantly altering economic incentives. Within this framework, LDWs could be considered what has been called a ‘dark nudge’ (8) or ‘sludge’ (9); an influence that *obstructs* (rather than aids) good decision-making. By imitating the audiovisual feedback of real wins, LDWs obscure decision-relevant information about the game’s true reinforcement rate. It is particularly concerning that Graydon et al. observe a distinct pattern of LDW-driven persistence in their participants with gambling problems, given that this subset contribute disproportionately to gambling revenue (10).

Drawing on the nudge framework, one approach to reducing gambling harm is to modify slot machines. As the tendency to misinterpret LDWs as wins seems driven by the delivery of winning feedback (11), this confusion could be prevented either by silencing these LDW jingles

or - more radically - by adding negative feedback to losses (including LDWs). In a study that compared these three conditions, there was an immediate effect of the losing sounds to reduce win overestimation in a sample of novice gamblers (12). The ‘silent treatment’ did not differ significantly from the standard condition, but may merit further examination in more experienced slot machine gamblers, in whom gradual benefits might be anticipated. An alternative strategy is to inform consumers about the presence and impact of LDWs using informational tools like instructional videos, which also reduced the over-estimation of winning in a student sample (13). Receiving timely, task-relevant information can help people better pursue their own health and financial goals (14,15). Unfortunately, educational interventions can be hampered by the ‘knowledge – action gap’, whereby enhanced awareness fails to transfer to healthier choices. This is likely to be especially true for activities that are accompanied by intense emotions, like gambling. Nevertheless, emerging lessons from the field of behavioural insights may provide innovative new ideas, and ways to enhance existing tools, in order to mitigate gambling harms.

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