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The relationship between dark flow, depression, and multiline slot machines

What this research is about

Slot machines are a risky form of gambling. They have certain features that can promote gambling problems. For instance, newer multiline slot machines allow gamblers to bet on many lines at once. Multiline slot machines also have a unique type of spin outcome called a "loss disguised as a win" (LDW). An LDW occurs when a gambler gains credits, but the number of credits gained is less than the original bet. Despite being actual losses, slot machines celebrate LDWs with sound and light effects like wins.

In single-line slot machines, there are no LDWs. Spins are either full losses or true wins. In these games, gamblers usually experience long chains of losses and occasional big wins. This creates a "choppy" experience for gamblers. Games with LDWs create a "smoother" experience for gamblers. This is because losing streaks are less obvious when some losses are disguised as wins. This smooth experience may cause some gamblers to be completely immersed in the game. This state is knowns as "dark flow" because it can result in negative consequences for gamblers.

The current study explored whether gamblers would respond to LDWs as if they were wins or losses. It also investigated whether multiline games were more prone to result in a dark flow state compared to single-line games. Finally, the study assessed the relationship between gambling problems, depression and dark flow.

What the researchers did

Participants were 136 gamblers, aged 19 years and older, from a casino in Brantford, Ontario, Canada. All participants were frequent slot machine gamblers. First, they completed a screening questionnaire to assess how severe their gambling problems were. They were also assessed for symptoms of depression.

Participants then completed an experiment in which they played a realistic slot machine simulator with 20-lines and a slot machine that simulated 1-line play. The bet amounts for both games were the same (betting 1 cent on each line for the 20-line game or betting 20 cents on the 1-line game).The slot machines had a force transducer underneath the spin button to measure how much force participants used to initiate the next spin. The researchers measured the force to determine whether the force applied following LDWs would be more similar to the force applied following wins or following full losses.

What you need to know

In this study, frequent slot machine gamblers completed an experiment in which they played a simulated 20-line slot machine game or a 1-line slot machine game. Gamblers reacted to "losses disguised as wins" (LDWs) as though they were small wins, not losses. Gamblers preferred the multiline game compared to the single-line game, and experienced more positive feelings while playing the multiline game. Problem gamblers experienced dark flow states in both the multiline and single-line games, but more so in the multiline game. Finally, gamblers with depressive symptoms experienced elevated dark flow states compared to those without depression. These same gamblers also indicated that they expected gambling to improve their mood. These results suggest that depressed individuals may seek relief from their negative moods by gambling.

After completing 250 spins on the first game (either the 20-line game or the 1-line game), participants reported their game experiences. The questionnaire included items, such as "I thought it was fun" and "I felt happy", to assess positive feelings. It also included items, such as "I forgot everything around me" and "I lost track of time", to assess if participants experienced a dark flow state when playing. After completing 250 spins on the second game, participants reported on their feelings and dark flow again. They also indicated which game they preferred.

What the researchers found

Participants applied small amounts of force to the spin button after losses, and large amounts of force after large wins. They applied the same amounts of force after LDWs and small wins. Thus, gamblers reacted to LDWs as though they were small wins, not losses.

Most participants (76%) preferred the 20-line game. Participants with more severe gambling problems experienced a dark flow state in both the 1-line and 20-line games. However, the dark flow state was more pronounced during the 20-line game. This suggests that problem gamblers experienced elevated dark flow states when playing on multiline games.

Participants with more severe gambling problems reported more depressive symptoms. Those with depressive symptoms experienced elevated dark flow states compared to those without depression. This suggests that some problem gamblers might gamble to find relief and escape negative moods. But such relief might cause them to continue gambling excessively: participants who experienced dark flow states also expected gambling to improve their mood or reduce tension.

How you can use this research

The findings of this study suggest that problem gambling interventions need to address the issue of slot machine gambling and dark flow. Treatment providers and clinicians should screen problem gamblers for depression, and depressed clients for gambling problems. This may help them identify clients who gamble to seek relief from negative thoughts and feelings. Treatment providers and clinicians should help these clients find and engage in healthier activities to improve their moods and reduce tension.

About the researchers

Mike J. Dixon, Madison Stange, Chanel J. Larche, Candice Graydon, and **Jonathan A. Fugelsang** are affiliated with the Department of Psychology and the Gambling Research Lab at the University of Waterloo in Canada. **Kevin A. Harrigan** is with the Gambling Research Lab at the University of Waterloo. To contact the researchers about this study, please write to Madison Stange at mstange@uwaterloo.ca.

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Slot machines, problem gambling, dark flow, depression

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