Gamblers 'see' more illusory patterns where there are none, study finds

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An image of a person playing the poker varient, Texas Hold'em. Credit: Wikipedia.

Pathological gamblers "see" patterns in things that are actually quite random and not really there, to such a degree that they are quite willing to impulsively bet good money on such illusory nonrandomness. This is confirmed by Wolfgang Gaissmaier of the University of Konstanz in

Germany and Andreas Wilke of Clarkson University in the USA, leaders of a study in Springer's *Journal of Gambling Studies* that sheds light on why some people are gamblers and others not.

The findings of the study add to a large body of research that suggests that cognitive distortions (or people's warped thinking), play an important role in pathological gambling. It provides further evidence for the assumption that gamblers are particularly prone to perceiving illusory patterns and are more impulsive than others.

Gaissmaier and Wilke's team focused on probability matching, an anomaly of choice that is related to the perception of illusory patterns. In a laboratory setting, the researchers compared the betting habits of 91 habitual gamblers against 70 community members. Participants were shown a picture of a casino and two slot machines and had to predict on many trials whether a coin would be obtained from the slot machine on the right or the left. The probability of winning was higher on one slot machine (67 percent winning chance) than on the other (33 percent winning chance), and the order of outcomes was completely random.

The best thing one can do in this task is to always bet on the better slot machine, which yields an expected accuracy of 67 percent. However, many people tend to match their response proportions to the outcome probabilities - they bet on the better slot machine in 67 percent of the cases, and on the worse one in 33 percent of the cases.) Such 'probability matching' only yields an expected accuracy of 55.6 percent. Previous research has shown that an illusory perception of patterns in random sequences fuels probability matching: People have the false impression that they "know" in which trials they have to bet on which slot machine - which is of course impossible given the random order.

The results showed that gamblers demonstrated more probability matching behavior and are thus obviously more likely to perceive

illusory patterns. Gamblers also scored much lower on the cognitive reflection task, which measures impulsivity. One question of this task is "A bat and a ball cost $1.10. The bat costs $1.00 more than the ball. How much does the ball cost?" The answer 10¢ comes quickly to mind, while the correct answer (5¢) requires more thought. That is, one needs to resist the impulse to "bet" on the intuitive but wrong answer, and gamblers were much less able to do so.

Humans are generally very good at detecting actual patterns. However, as a side effect of that ability, they also fall prey to seeing illusory patterns. Probably everyone who played roulette once knows the erroneous feeling that "red" is due after five times "black." Yet, for gamblers, this seems to be a particularly pronounced problem. "Our results suggest that gamblers are more willing to bet impulsively on perceived illusory patterns," says Gaissmaier. "They are overly prone to accept random series of events as, in fact, nonrandom - and nonrandom enough to be worth betting on."

More information: "Betting on illusory patterns: Probability matching in habitual gamblers," *Journal of Gambling Studies*. DOI: 10.1007/s10899-015-9539-9

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