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Conceptual challenges from pathological gambling

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As a mental illness, pathological gambling has aspects that present us with several conceptual challenges. Ultimately, gambling pathologies can help illuminate the nature of the human mind, the concept of free will, and the logic of leisure.

Gambling is the act of risking the loss of something of value (usually money) on an uncertain outcome in the hope of winning something of greater value (usually money). More than 80% of the population of Ontario engages in some form of gambling ([Room, Turner & Ialomiteanu, 1999](#); [Turner, Wiebe, Falkowski-Ham, Kelly & Skinner, 2005](#)). Similar levels of participation have been found in numerous countries throughout the world. Most people gamble as a means of entertainment; however, a relatively small proportion develop a clinically significant gambling pathology. Pathological gambling (PG), according to the DSM-IV ([American Psychiatric Association, 2000](#)), is an impulse-control disorder characterized by persistent and maladaptive gambling behaviours that have disruptive consequences for familial, occupational, and social pursuits. Researchers and clinicians also identify a less serious level of gambling-related disorder that is known as problem gambling. A meta-analysis by [Shaffer et al. \(1999\)](#) for North America reported the lifetime prevalence of PG in adults at 1.6%, with an additional 3.9% having a milder, sub-clinical level of gambling problems.

This editorial aims to explore some issues related to gambling that challenge our

way of thinking about the world.

1) **Pathological gambling challenges our concept of addiction.** If pathological gambling is an addiction like drug or alcohol addiction, this forces us to turn our focus away from the chemistry of the “drug” per se and look more at its psychological effect. A gambling win is a powerfully rewarding experience, yet such an experience is not caused by a drug, but by an experience that is only pleasant because of the meaning it has for that person. For example, suppose a dealer is pushing 10 chips towards you. If you had no understanding that black-and-yellow chips represented \$100 each, you would not know that you had just won \$1000. Nonetheless this psychological “addiction” can produce physiological symptoms of withdraw ([Rosenthal & Lesieur, 1992](#)). I believe we can gain a great deal of insight into the process of addiction by looking at the similarities and differences between various behaviours that we call addictions. For example, the fact that there are huge numbers of people who eat compulsively or who are addicted to smoking suggests that addiction is not a rare condition. Furthermore, although addictions are associated with increased risk of other addictions (e.g., gambling and smoking), yet many addicted people are selective in their addictions—that is, they may be addicted to gambling but not to drugs. Speaking from the point of view of a person who is overweight, I have a great deal of difficulty stopping when it comes to eating potato chips, but no difficulty at all stopping my consumption of sweet food, or alcohol, or gambling. Is this an addiction? My impulse control problem is very limited in scope (potato chips only, not poker chips). It is interesting that both smoking and excessive eating are associated with long term health problems, but relatively little short term harm (perhaps nausea or a stomach ache at worst). In contrast rarer “addictions” such as gambling and alcohol have a much greater potential for short term harm (e.g., loss of money, traffic accidents). Perhaps short-term harm is a factor that limits prevalence. A future area of research should be to look at similarities and differences in the nature of different addiction-like behaviours to gain insight into what is common and what is unique to each.

2) **Challenges to our notion of illness.** Gambling addictions are in essence brought upon oneself. The person is aware of what they are doing; they are not inebriated; there is no physiological harm done to oneself, and no brain damage to speak of. This awareness and apparent control over what one has done may explain the strong association between gambling and suicide. There are real changes to the reward system of the brain brought about by excessive gambling, but these changes are not really different from the sorts of changes found in other learning situations: learning to read and to drive create similar changes in brain function. Excessive gambling is an “illness” that causes no obvious physiological harm, but can lead to massive psychological and social harm. The stressful consequences of excess gambling, however, may lead to physiological harm.

3) Challenges to our concept of free will. How can free will be co-opted by a game? The same issue applies to drugs, but I think people are more comfortable talking about drugs as interfering with one's brain because the drug is seen as an external agent that is ingested and acts upon the brain. With gambling it's the game that creates the problems. How? I have heard some people try to explain machine gambling as a process of hypnotism caused by the spinning reels of a machine. But such an explanation does not account for addictions to betting on horses, dice, or poker or other card games, where there are no spinning reels to speak of. I suggest looking at gambling addiction as resulting from two modes of mental operation. One mode is the effortful processing that is used for novel situations, and the other involves automatic processes that are used to control familiar situations. Language comprehension provides a helpful analogy. We do not have time to ponder the nuances of every word, but have automatic processes for interpreting most sentences; however, we can resume control over the automatic processes when encountering novel words, strange syntax, or new information. Normally our brain takes care of most actions automatically; conscious thought is employed to conduct effortful thought processes only when the brain is unsure what to do. If you show someone the word "yellow" printed in red ink and ask what colour the word is written in, the word meaning is (usually) automatically retrieved and interferes with colour naming (the Stroop effect). In the case of automatic language processing, the effect is pretty usually harmless, even amusing. However, if highly ingrained gambling behaviour leads to an automatic process, it is difficult for the conscious brain—strongly conditioned to seek gambling—to override these pre-programmed behaviours. I believe that it is not until the behaviour has led to strong negative consequences (e.g., hitting bottom) resulting in competing drives that control reverts back to conscious thought for evaluation. Future research needs to examine the automation of gambling behaviours to determine how this process occurs, what can be done to prevent it, and what can be done to de-automatize the brain.

4) Challenges of definition. There are several problems with definitions. Gambling itself is not clearly defined. Is insurance (a small investment to protect against a large loss), for example, a form of gambling? Thirty percent of people in Ontario do not consider bingo to be a form of gambling ([Turner et al., 2005](#)). But the largest problem centres around the issue of the point at which pleasure-seeking becomes an addiction. Is pathological gambling an all-or-nothing disease or are there real intermediate levels of the pathology? This is not a simple problem. Surveys often identify people who appear to have an intermediate level of disordered gambling (e.g., a SOGS score of 3). Do these intermediate scores mean that problem gambling varies over a continuum? "Midway" scores could possibly be an artifact of inaccurate measurement rather than a true reflection of the nature of the phenomenon. It may simply be that we have not developed perfectly reliable and valid measurement techniques (nor will we ever). One

particular source of error is the use of discrete yes/no questions in most assessment measures, because they (1) fail to take into account frequency of behaviour and (2) force the respondent to determine their own threshold of response. Do addictions vary on a continuum or are they discrete conditions? We need to address this issue by developing better measures and by examining the nature of non-disordered gamblers.

5) **Challenges to our notion of responsibility.** If someone is addicted to gambling, are they responsible for their actions? Who is responsible for our actions in a casino? The idea of responsibility needs to be examined carefully. Interestingly, many gamblers do act in a responsible manner (e.g., they set limits; gamble with money they can afford to lose; [Turner et al., 2005](#)); however, the industry in general often does not act responsibly. Indeed the industry, driven by a single-minded focus on the short-term bottom line, often tries to encourage irresponsible play. I believe there is a shared responsibility. People need to take steps to protect themselves and seek out information about the risks of any activity they engage in. However, currently there is very little in the way of consumer-protection-oriented information available from the gambling industry. There is inadequate disclosure about the nature of the games and their addictive potential. Marketing practices are often not conducted in a socially responsible manner. In addition the industry often is in a position to be aware when people are harming themselves as a result of gambling, but does not regularly intervene. There are some signs that legal challenges and regulations may be moving the industry towards taking greater responsibility.

6) **Challenges to concepts of jurisdiction and ownership.** Who is in charge of gambling? Who is responsible for control? This issue will come to a crisis in the near future if Internet gambling begins to take a bite out of the casino and lottery profits. In Canada only the government or a charity can operate a casino or other gambling venue. By a weird twist of Canadian logic an arrangement that was intended to control gambling has been turned into one that promotes it. This situation has created a conflict of interest in Canada over the balance of profit, regulation, and social justice. The situation is not really better in countries where casinos are privately owned because casinos provide tax revenue. Either way, huge profits have the potential power to corrupt. In either case the regulator is often at a conflict of interest. What will happen to regulation as we move towards greater globalization of gambling?

7) **Challenges to our notion of what is rational and what constitutes entertainment.** People choose to gamble even when they know it is a losing proposition. Taking drugs or alcohol in the face of potential consequences is similarly irrational. Some researchers have focused on the irrationality of gambling; however, gamblers often use logic to try to find an edge. Unfortunately most often

the players lose anyway because the games offered either have no possible edge (slots, roulette, lotteries) or the edge is relative to the other players' skills (poker, sports betting, games of skill). Although the systems that many gamblers come up with do not work in the long term, there is considerable logic employed in devising such systems (e.g., the Martingale system is logical, but based on faulty notions about random chance).

But even non-problem gambling is often viewed as irrational. In a recent paper [Manson \(2003\)](#) characterizes most gamblers as impulsive and poorly informed. Is it rational to buy a lottery ticket? The reality is that, for most people, wealth is unlikely to result from either buying the lottery ticket or not buying the lottery ticket. But gambling buys a dream. In the case of the non-problem gambler this dream might be thought of as rational if the pleasure they get from the dream is worth the cost. It's fun to gamble. The paradox of gambling is that people willingly (at least those who are not addicted to it) engage in an investment that has a negative expected value. Apparently the value of the fun or the risk makes up for the long-term expected losses ([Wagenaar, 1988](#)). Gambling does not have to be any more expensive than other hobbies. But we question the rationality of gambling because people play with money in the hope of winning. Leisure and entertainment in general can be thought of as financially irrational. If you spend money on a movie, there is no hope of winning back money. So which is more rational? A movie or a lottery ticket? Leisure activities are engaged in for pleasure; if you enjoy the movie or the gamble, you've gotten your money's worth. Gambling is therefore not an inherently irrational activity. Future research needs to explore non-problem gambling and its relationship to other forms of entertainment. Currently there is lot for research on the symptoms of pathological gambling, but very little on the psychology of healthy, non-disordered gambling.

Its fun to gamble, but it's not fun to lose one's life savings. Although we might be able to rationalize the behaviour of the non-addicted gambler, we cannot rationalize the behaviour of the addicted gambler. How can a behaviour that leads to such misery be so thrilling that a person could gamble away thousands of dollars? In the movie *Owning Mahowny* (for a review see [Kassinove, 2004](#)), even after a great deal of stress and personal disaster, Mahowny's character still rates gambling as 100 out of 100 in terms of the most thrilling experience of his life. To what extent do people who have suffered such consequences of gambling continue to long for the thrill? At what point does pain drive out the pleasure?

8) Challenges to the way we think about biology. That gambling has a biological effect does not mean there is a biological cause. While gambling pathology has been linked to some genes and to a dysfunction of the reward system, the fact is that, like all other addictions, gambling is at least in part a learned disorder. The core central feature of gambling pathology is the experience

of gambling itself. Aspects of that experience crucially related to learning, such as big wins and intermittent reinforcement, go a long way to deepen our understanding of the disorder. Learning is a neurological process. Every time we learn something new the relative strength of different neural pathways is altered. An important area of future research is the study of the extent to which the brain is changed by the experience of gambling.

9) **Challenges to concepts of evolution.** Our brain has evolved the ability to become addicted. Our brain is designed to respond to salient stimuli, but in developing an addiction the brain goes well beyond merely learning. Why would a brain evolve the ability to acquire harmful habits, be they drugs, gambling, or smoking? It is obvious that gambling per se did not evolve, since there is no real natural equivalent of gambling. Thus there must be elements of gambling that borrow older, more primitive learning processes and co-opt them into an addiction. The evolutionary value of risk-taking perhaps explains the thrill that people get out of gambling, but not the addiction to it. I think it is reasonable to speculate that an addiction may co-opt some other mechanism in the brain. I would also suggest that the process in question that produces addictions might also be related either to the process by which bonds are developed between individuals or the process by which we learn which foods are safe to eat. Both mating and food preference are closely related to survival. They also are both known to lead to excessive behaviour in some individuals (e.g., stalking an ex-girlfriend, or overeating potato chips). Looking for the evolutionary purpose of the potential for addiction is an interesting area of future research that may also shed light on treatment.

My purpose in highlighting these challenges is to encourage the focus of gambling research to examine these issues more explicitly. Gambling problems are an interesting test case for our notions of free will, disease, addiction, and responsibility. In discussing these issues I hope that I can bring about a greater integration of ideas into this field of research and treatment so that gambling-related developments in genetics, neurology, psychology, sociology, and economics do not occur in isolation.

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Statement of purpose

The Journal of Gambling Issues (JGI) offers an Internet-based forum for developments in gambling-related research, policy and treatment as well as personal accounts about gambling and gambling behaviour. Through publishing peer-reviewed articles about gambling as a social phenomenon and the prevention and treatment of gambling problems, it is our aim is to help make sense of how gambling affects us all.

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