camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale
A publication of the Centre for Addiction and Mental Health

ISSN: 1494-5185

JOURNAL OF GAMBLING ISSUES

contents

issue 16 — april 2006

intro

What can affective neuroscience teach us about gambling?
Martin Zack

"Brief reports" for rapid publishing of short research notes
Phil Lange

research

Gambling and problem gambling in a sample of university students
Robert J. Williams, Dennis Connolly, Robert T. Wood, & Nadine Nowatzki

Gender differences in problem gambling behaviour from help-line callers
Jill Heater & David Patton

Faro: A 19th-century gambling craze
Nigel E. Turner, Mark Howard, & Warren Spence

Characteristics of people seeking treatment for problem gambling in Ontario: Trends from 1998-2002
Karen A. Urbanoski & Brian R. Rush

Classroom or cyberspace: Ethical and methodological challenges of online gambling surveys for adolescents
Julie Lahn, Paul Delfabro, & Peter Grabosky

brief report

Underage gambling in Ontario casinos
Edward Adlaf, Angela Paglia-Boak, & Anca Ialomiteanu

clinical corner

The case of the bleak blackjack bettor: Clinical depression and pathological gambling
Bruce Ballon

opinion

Clarifying the at-risk label: A commentary
Blasé Gambino

reviews

book review
Gambling: Who Wins? Who Loses? (2003)
By Gerda Reith (editor)

book review
Born to lose (2005)
By Bill Lee

book review
Internet Gaming Law (2005)
By I. Nelson Rose & Martin D. Owens

movie review
Walking Tall (2004)

letter

"In 'Conceptual challenges from pathological gambling'..."
Sue Pinkerton

letters to the editor

submissions

links

archive

subscribe

Formerly the *Electronic Journal of Gambling Issues: eGambling* (*EJGI*)

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

intro

editorial

What can affective neuroscience teach us about gambling?

For the past 25 years, Jaak Panksepp, professor of psychology at Bowling Green State University, has waged a sometimes lonely battle against the purveyors of what he calls "neurobehaviorism." In his opinion, behavioral neuroscientists have simply replaced the environmental orientation of classic behaviorists, like Watson and Skinner, with a neurochemical orientation. In each case, the living being is essentially a "scarecrow" that responds to stimuli. The subjective experience of that living being is granted little if any importance because it cannot be empirically verified or tested. In the quest for objectivity, neuroscientists—like behaviorists before them—have eschewed the fundamental issue of consciousness. Panksepp believes that this has impeded progress in our understanding and treatment of many forms of psychopathology, and particularly those that involve disturbances in motivation, such as addiction.

A consequence of neurobehaviorism is illustrated by the ongoing debate on the role of dopamine in addiction. In the past 25 years, the subjective state associated with brain dopamine activation has been variously described as pleasure, reward, reinforcement, drive, wanting, salience, and expectancy. The most recent formulation describes brain dopamine activation as the neural response to a "reward prediction error" (Schultz, 2001). Despite a quarter century of debate, the true subjective state associated with dopamine activation (if one exists) remains unclear.

Much of the difficulty, according to Panksepp, stems from the contrived manner in which neuroscientists assess processes such as reward. For example, when an animal returns to a location where it previously received a drug (e.g., cocaine), this behavior is interpreted as an indication of cocaine-induced reward (or the memory of such a reward). Although this is a reasonable inference, the Conditioned Place Preference model of drug reward has difficulty contending with critical anomalies. For example, alcohol is

widely enjoyed and abused by humans yet consistently leads to avoidance in the Place Preference paradigm. This is not due to extreme intoxication, because avoidance is seen at a range of doses, nor to the aversive aftereffects of drinking (hangover), because the animals are returned to their home cages well before such effects emerge.

An alternative approach to behavioral neuroscience is what Panksepp terms "affective neuroscience." This approach focuses to a greater extent on ecologically valid stimuli and spontaneous responses to assess the neural basis of a phenomenon. The primary question to be answered is, "What is the subjective emotional state of the organism in this particular situation?"

Panksepp has shown that animals (rodents) emit sounds of particular frequencies that correspond to particular naturally occurring states. High-frequency sounds accompany positive anticipatory or happy states like social play; low-frequency sounds accompany states of stress or dysphoria. To Panksepp, these spontaneous vocalizations correspond to self-reports of affective state in humans. This assertion is supported by numerous studies where drugs with known subjective effects in humans produce the expected pattern of vocalization in animals. He has even shown that rodents vocalize in the expected manner when tickled.

Panksepp favors these natural responses as dependent measures because they "reflect the operation of distinct emotional operating systems that are concentrated in sub-neocortical regions in the brain" (Panksepp, 2005a, p. 31). In other words, these responses reflect how the brain actually operates in response to events in the real world. As such, the neural activity that gives rise to these responses may be able to tell us more about real-world conditions such as addiction and depression.

Although both the affective neuroscience and the behavioral neuroscience approaches examine behavior, a critical difference is that, in the former case, conscious experience is presumed to play a causal role. By contrast, in the latter case, conscious experience is considered epiphenomenal—an incidental byproduct of neural activity with no causal impact. Indeed, among behavioral neuroscientists, consciousness has sometimes been likened to the whirr of the lawnmower: It's loud and impressive, but it doesn't cut the grass.

Another issue is that, compared to human self-reports, which are subtle, rich, and variable, animal vocalizations seem coarse and one-dimensional. This may partly explain why behavioral neuroscientists have adopted more contrived measures (e.g., time spent in a location where a drug was given). In psychological parlance, Panksepp appears to be arguing for the importance of

ecological validity (the manipulation produces an effect that generalizes to the real world) over internal validity (the manipulation accomplishes what it is intended to). The relative importance of external/ecological validity versus internal validity is, of course, an ongoing debate in all of science.

In the clinic, unlike in the laboratory, self-report is the primary currency. As such, inferring cause and predicting effective interventions based on self-report data are not extraordinary to the clinician. For example, self-reports can specify clients' perceived motivation for their excessive behavior: cravings, loss of control following exposure to addictive stimuli, or coping with negative affect. Although this information is often accurate, its utility can be enhanced by a cogent theoretical framework. Affective neuroscience provides one such framework. The value added by an affective neuroscience framework may be especially great in the case of problem gambling, a disorder that does not fit neatly into the existing diagnostic schema.

In a similar vein, an affective neuroscience approach may shed light on aspects of mental disorders that have thus far eluded understanding or effective treatment. An excellent example of this is the recent work on the biological basis of separation distress. Panksepp has shown that opiate drugs such as heroin and morphine quell separation distress effectively and at lower doses than they do anger or fear. On this basis, he has argued that the brain opioid system mediates social pain (shame, loss, grief, jealousy). Given the well-established role of the opioid system in analgesia, the findings imply that separation distress is neurochemically similar to physical pain. In line with this reasoning, neuroimaging research in human volunteers has shown that the same brain regions that "light up" during physical pain also light up in response to social exclusion (Eisenberger, Lieberman, & Williams, 2003). Based on such findings, Panksepp proposed that certain depressive syndromes (e.g., those induced by loss) that do not respond optimally to conventional antidepressants could benefit from medications such as buprenorphine that recalibrate brain opioid function. Not surprisingly, these medications have also proven very effective in the management of opiate addiction.

The brain opioid system is one of seven evolutionarily defined systems that Panksepp's model has identified in the mammalian brain. He refers to these systems as SEEKING, FEAR, RAGE, LUST, CARE, PANIC, and PLAY. Activation of the opioid system with low doses of opiate drugs enhances PLAY, whereas deactivation induces PANIC. High doses of opiates produce sublime contentment similar to that observed in babies suckling at their mother's breast.

The other system Panksepp has emphasized as critical for

addiction is the SEEKING system. This is consistent with the intense craving and compulsive reward-seeking that are the hallmarks of addiction. Panksepp proposes that the SEEKING system is a survival-oriented system that gives rise to foraging behavior when internal signals indicate a deviation from homeostasis (e.g., hunger). This system is predominantly mediated by dopamine. The dopamine system responds selectively to novel, attention-grabbing events and stimuli that predict reward. Activation of the SEEKING system leads to "an invigorated positive feeling of engagement with tasks that can border on euphoria. All psychostimulants [e.g., amphetamine, cocaine] promote such feelings, helping explain the addictiveness of certain drugs, and also indicating why goal-directed behaviors have such a persistent quality" (Panksepp, 2005a, p. 49).

Not only are the PLAY and SEEKING systems strongly implicated in chemical addictions, but growing evidence suggests they may be involved in problem gambling as well. For example, drugs that block brain opioid receptors (e.g., nalmefene, naltrexone) may reduce some of the pleasurable high of gambling. Accordingly, initial clinical trials suggest that these drugs may be beneficial for the treatment of problem gambling (Grant et al., 2006; Kim, Grant, Adson, & Shin, 2001). Neuroimaging studies have shown that anticipation and receipt of money—core aspects of gambling—activate brain regions rich in dopamine in healthy volunteers (Knutson, Westdorp, Kaiser, & Hommer, 2000). Participation in a gambling-like task that yields rewards also activates the brain dopamine system in problem gamblers, and the degree of activation is inversely related to the severity of gambling symptoms (Reuter et al., 2005). In other words, pathological gambling is associated with deficits in the ability of gambling to activate dopamine. This may explain tolerance to low-intensity gambling activity and the progressive escalation in risky, high-stakes betting that characterize pathological gambling. Other research has tested the hypothesis that pharmacological activation of the SEEKING system can prime the motivation to gamble. In one study, the psychostimulant drug amphetamine was found to increase self-reported desire to gamble and to decrease confidence to refrain from gambling in problem gamblers, effects that were not seen in healthy control subjects or problem drinkers with no history of gambling problems (Zack & Poulos, 2004).

The idea that the PLAY and SEEKING systems are involved in gambling makes intuitive sense. It also provides the basis for testing interventions to modify these behaviors. This is a critical issue because a viable animal model of gambling has thus far proven elusive. Conventional behavioral neuroscience approaches do not appear to capture some of the essential features of gambling. For example, although operant responding and delayed extinction under an intermittent reinforcement schedule

characterize the persistent pattern of gambling that occurs in some gamblers, they fail to capture the inherent risk of loss entailed by each new trial in a gambling situation. In contrast, foraging (SEEKING) in unfamiliar, potentially dangerous environments appears to capture deliberate risk-taking with a view toward the prospect of eventual gain.

An important implication of an affective neuroscience formulation of gambling is that aversive feelings would be expected to accompany the absence of gambling in someone dependent upon it. Thus, if activation of the opiate system characterizes the experience of gambling, deactivation of this system would be predicted to characterize the experience of gambling withdrawal. Based on Panksepp's research on play and social attachment, gambling withdrawal would be expected to involve feelings of social distress, grief, and loss. If so, high rates of depression in problem gamblers may derive not only from the distress of economic and interpersonal hardship but also from neurochemical deficits occasioned by opiate-like withdrawal from gambling.

With respect to the SEEKING system, gambling withdrawal would be expected to involve feelings of boredom or restlessness: an uncomfortable state of disengagement with the world. Clearly, these aversive states could motivate gambling, particularly in those familiar with its palliative effect. In line with this, recent evidence has shown that partial deactivation of the dopamine system by a drug increases the pleasurable effects of an actual gambling episode along with post-game desire to gamble in problem gamblers (Zack, Poulos, & Desmond, 2004).

A related implication of Panksepp's model is that the incentive value of gambling should increase during periods of *non-gambling-related* deficits in dopamine and opioid function. Thus, just as eating is especially pleasurable when food is scarce, a suppressed SEEKING system would make gambling especially pleasurable. And just as freedom is especially valued when one has been constrained, a suppressed PLAY system would make gambling especially valuable. The recent devastating floods in New Orleans provide a real-world example of such effects. The pervasive destruction incurred by hurricane Katrina would make foraging a futile exercise; there is nothing to find. Similarly, the loss of home and possessions would have shaken one's sense of security and, as the days passed without respite, led to feelings of PANIC. For people in this situation, gambling could provide powerful relief: hope to the SEEKERS and comfort to the PANIC stricken. Within this framework, it is not surprising that "compared to the pre-Katrina world of November 2004, casino revenues in Lake Charles were up 41 percent, in New Orleans were up 63 percent and in Baton Rouge were up 69 percent last month [November 2005]. Overall, Louisiana saw a 32 percent increase even though three casinos

still are closed as a result of the storms" ("Louisiana business shorts," 2005). Increased gambling in Louisiana may partly reflect displaced demand due to the closure of riverboat casinos in Mississippi. Such "migratory" gambling would be consistent with the targeted SEEKING model and the presumed increase in the incentive value of gambling in the face of disaster. Clearly, an affective neuroscience explanation is only one of many possible ways to interpret these events. Nevertheless, this approach has the advantage of predicting the kinds of interventions that should reduce disaster-related gambling, namely those that restore dopamine and opioid function. While drugs may accomplish this, genuine compassion from official parties and engagement of citizens in the rebuilding process would seem to be the best real-world antidotes.

The affective neuroscience model helps to explain some of the proximal causes of gambling. It also suggests which individuals, among those exposed to these causes, will escalate to problem gambling, namely those whose SEEKING and PLAY systems are inherently fragile. In line with this, the literature shows that individuals with genetic deficits in dopamine (D2) receptor function are significantly more prone to problem gambling than those without such deficits (Comings et al., 1996). Other research has found that "repeated periods of MS [maternal separation] early in life in male Wistar rats … induce long-lasting and possibly permanent alterations in the opioid peptide systems" (Ploj, Roman, & Nylander, 2003, p. 149). That such changes may be pathogenic is supported by the finding that pathological gamblers report significantly lower levels of parental bonding and parental care compared to healthy controls (Grant & Kim, 2002). Thus, both nature and nurture appear to sculpt the neural circuitry that promotes or protects against pathological gambling.

The brief overview of findings provided above highlights the importance of primary affective states as a basis for guiding research on gambling. The affective neuroscience model also has important implications for how we might approach gambling addiction at the clinical and social levels. In this regard, Panksepp notes, "if people's deepest feelings of social attachment are related to molecules that can also mediate drug addiction, then 'wars on drugs' may need to recognize certain painful psychobiological realities to become more effective. For instance, if people take opiates [or gamble] not just for superficial thrills but to achieve emotional homeostasis (Baker et al., 2004) [Baker, Piper, McCarthy, Majeskie, & Fiore, 2004], then addiction proneness will be related to how well prevailing social structures allow individuals to navigate the painful emotional passages of their lives" (Panksepp, 2005b, p. 228). By this reasoning, public health would be well served if agencies that profit from gambling reinvest their gains into socioeconomic opportunities, services, and

supports that might obviate some people's need to gamble to induce artificially those states they cannot achieve naturally in their daily lives.

References

Baker, T.B., Piper, M.E., McCarthy, D.E., Majeskie, M.R., & Fiore, M.C. (2004).
Addiction motivation reformulated: An affective processing model of negative reinforcement. *Psychological Review, 111*, 33–51.

Comings, D.E., Rosenthal, R.J., Lesieur, H.R., Rugle, L.J., Muhleman, D., Chiu, C., et al. (1996).
A study of the dopamine D2 receptor gene in pathological gambling. *Pharmacogenetics, 6*, 223–234.

Eisenberger, N.I., Lieberman, M.D., & Williams, K.D. (2003).
Does rejection hurt? An FMRI study of social exclusion. *Science, 302*, 290–292.

Grant, J.E., & Kim, S.W. (2002).
Parental bonding in pathological gambling disorder. *The Psychiatric Quarterly, 73*, 239–247.

Grant, J.E., Potenza, M.N., Hollander, E., Cunningham-Williams, R., Nurminen, T., Smits, G., & Kallio, A. (2006).
Multicenter investigation of the opioid antagonist nalmefene in the treatment of pathological gambling. *American Journal of Psychiatry, 163*, 303-312.

Kim, S.W., Grant, J.E., Adson, D.E., & Shin, Y.C. (2001).
Double-blind naltrexone and placebo comparison study in the treatment of pathological gambling. *Biological Psychiatry, 49*, 914–921.

Knutson, B., Westdorp, A., Kaiser, E., & Hommer, D. (2000).
FMRI visualization of brain activity during a monetary incentive delay task. *Neuroimage, 12*, 20–27.

Louisiana business shorts: Lafayette technology, Imperial Sugar, AARP, Louisiana gambling, Baton Rouge real estate, U.S. trade. (2005, December 14).
BayouBuzz. Retrieved January 23, 2006, from http://www.bayoubuzz.com/articles.aspx?aid=5723

Panksepp, J. (2005a).
Affective consciousness: Core emotional feelings in animals and humans. *Consciousness and Cognition, 14*, 30–80.

Panksepp, J. (2005b).
Why does separation distress hurt? Comment on MacDonald

and Leary (2005). *Psychological Bulletin, 131*, 224–230

Ploj, K., Roman, E., & Nylander, I. (2003).
Long-term effects of short and long periods of maternal separation on brain opioid peptide levels in male Wistar rats. *Neuropeptides, 37*, 149–156.

Reuter, J., Raedler, T., Rose, M., Hand, I., Glascher, J., & Buchel, C. (2005).
Pathological gambling is linked to reduced activation of the mesolimbic reward system. *Nature Neuroscience, 8*, 147–148.

Schultz, W. (2001).
Reward signaling by dopamine neurons. *Neuroscientist, 7*, 293–302.

Zack, M., & Poulos, C.X. (2004).
Amphetamine primes motivation to gamble and gambling-related semantic networks in problem gamblers. *Neuropsychopharmacology, 29*, 195–207.

Zack, M., Poulos, C.X., & Desmond, R.C. (2004, May).
Partial dopamine blockade by haloperidol increases the reinforcing effects of a gambling episode in problem gamblers. Paper presented at the annual conference of The Alberta Gaming Research Institute, Banff, AB.

By Martin Zack, PhD, Clinical Neuroscience Section, Centre for Addiction and Mental Health, Toronto, Ontario, Canada.
E-mail: Martin_Zack@camh.net

Competing interests: None declared.

*** *** ***

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.

The *JGI* is published by the Centre for Addiction and Mental Health and is fully funded by the Ontario Substance Abuse Bureau of the Ministry of Health and Long-Term Care. We welcome manuscripts submitted by researchers and clinicians, people involved in

gambling as players, and family and friends of gamblers.

Disclaimer: The opinions expressed in this journal do not necessarily reflect those of the Centre for Addiction and Mental Health.

Ethics and accountability

The *Journal of Gambling Issues* is a member of the International Society of Addiction Journal Editors and supports the Farmington Consensus statement on ethical standards in publishing: http://www-users.york.ac.uk/~sjp22/isaje/farmington.htm

Reviewers

Design Staff

issue 16 — april 2006

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

intro

"Brief reports" for rapid publishing of short research and clinical notes

In this Issue 16 we begin publishing "Brief reports" to quickly present research and clinical results to our readers. Our goal for rapid publishing will be to present papers within 4 months of their submission to the *Journal of Gambling Issues*.

All brief reports will be peer-reviewed. We have designed a new and faster process that requires reviewers to comment within 3 weeks and for authors to submit the next draft within 3 weeks of receiving comments from the reviewer. We invite researchers and clinicians to submit recent analyses for publication as brief reports.

Specifications:

1. Submissions must include current research and clinical results written within the last 6 months and not submitted elsewhere.

2. Reports must be 900 words or less in length, including the paper's title; names of authors, their affiliations (one affiliation per author), city, state/province, country; an abstract of 100 words or less; headings and subheadings; one table or one figure (or other graphic); citations; and endnotes (footnotes are discouraged for this section); but *not including* references, manuscript history, acknowledgements, and all ethical and accountability information (these requirements are the same as for "full-length" research and clinical papers; please see the Submissions section).

3. The manuscript must have double-line spacing, page borders of 1.25 inches on all four sides, and all text in Times New Roman 12-point typeface, including endnotes.

4. The table (or figure or graphic) can be no wider than the equivalent of 4 inches (or 60 characters/letters in Times New Roman 12-point typeface).

We welcome your comments and submissions for this section.

Phil Lange, editor,
Journal of Gambling Issues
URL: http://www.camh.net/egambling/
E-mail: Phil_Lange@camh.net
Centre for Addiction and Mental Health, 33 Russell St., Toronto, Ontario M5S 2S1 Canada
Phone: (416) 535-8501 Ext. 6077; fax: (416) 595-6399

issue 16 — april 2006

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

research

Gambling and problem gambling in a sample of university students

Robert J. Williams, Alberta Gaming Research Institute, University of Lethbridge, Lethbridge, Alberta, Canada.
E-mail: robert.williams@uleth.ca

Dennis Connolly, Department of Mathematics & Computer Science, University of Lethbridge

Robert T. Wood, Department of Sociology, University of Lethbridge

Nadine Nowatzki, School of Health Sciences, University of Lethbridge

Abstract

University students from southern Alberta (*n* = 585) were administered a questionnaire to assess their gambling behaviour. Seventy-two percent reported gambling in the past 6 months, with the most common types being lotteries and instant win tickets (44%) and games of skill against other people (34%). Most students who gambled spent very little time and money doing so (median time spent = 1.5 hrs; median amount of money spent = $0). While gambling is an innocuous activity for most, a significant minority of students are heavy gamblers who experience adverse consequences from it. Seven and one-half percent of students were classified as problem or pathological gamblers, a rate significantly higher than in the general Alberta adult population. The characteristics that best differentiated problem gamblers from non-problem gamblers were more positive attitudes toward gambling, ethnicity (41% of Asian gamblers were problem gamblers), university major (kinesiology, education, management), superior ability to calculate gambling odds, and older age. **Key words**: gambling, problem gambling, university, students

Introduction

The impact of the extensive availability, advertising, and

sanctioning of legalized gambling is of concern in the fields of public health and addictions. Among adults, the prevalence of disordered gambling has increased significantly from 1977 to 1993 (Shaffer, Hall, & VanderBilt, 1997). It was estimated in a 2001 meta-analysis that 4.0% of adults in North America met criteria for either problem or pathological gambling in the past year (Shaffer & Hall, 2001).

Of even greater concern is the impact of gambling on the current generation of youth, as they are the first to have been raised in an environment of extensive legalized and government-sanctioned gambling. Indeed, there appears to be reason for concern. Several surveys have found the prevalence rates of gambling to be highest in young adults. Young adults typically have the highest rates of involvement in most risky behaviours (substance use, reckless driving, unsafe sex, etc.) (e.g., Douglas et al., 1997). Gambling appears no different. The lifetime rates of gambling in college and university students typically range from 70% to 94%, with males consistently having higher rates than females (Adebayo, 1998; Devlin & Peppard, 1996; Engwall, Hunter, & Steinberg, 2002; Kang & Hsu, 2001; Ladouceur, Dube, & Bujold, 1994; Lesieur et al., 1991; Oster & Knapp, 1998). A recent nationally representative study of college students in the United States (LaBrie, Shaffer, LaPlante, & Wechsler, 2003) found a lower prevalence, but this study was limited by low response rates and a lack of questions about all forms of gambling.

National studies have consistently found that the rates of problem gambling also peak in the age group 18 to 24 (Gerstein et al. (1999) in the United States, Productivity Commission (1999) in Australia, and Rönnberg et al. (1999) in Sweden). Similarly, the meta-analysis of all North American prevalence studies found that the 19 study samples of college students had higher overall lifetime rates of problem and pathological gambling (16.4%) than either adolescents (11.8%) or adults (6.1%) (Shaffer & Hall, 2001).

While many studies have documented that college and university students have the highest prevalence rates of gambling and problem gambling, much less is known about the nature of gambling in this group. Specifically, little is known about the amount of time and money spent on gambling, the types of gambling being played, and the characteristics differentiating nongamblers from gamblers and gamblers from problem gamblers. The above topics form the basis for the present study.

Method

The sample consisted of students from the University of Lethbridge, in Lethbridge, Alberta, Canada. Alberta has one of the

widest arrays of gaming entertainment options available to its citizenry of any jurisdiction in North America (Wynne, 2000), and the city of Lethbridge has all of these options available. The University of Lethbridge is a primarily undergraduate institution with a student body mostly from western Canada. Students were recruited from 10 different introductory courses in statistics, history, and sociology between September 2001 and April 2003. A 30-minute gambling questionnaire was administered at the beginning of each course. Students were told that the questionnaire was designed to assess their general gambling knowledge, attitudes, and behaviour and that completion of the questionnaire was optional. The questionnaire collected and assessed

1. demographic information concerning age, gender, race/ethnicity, current university major, and current university year;

2. attitude toward gambling as measured by the Gambling Attitudes Scale (see below);

3. knowledge of gambling and problem gambling as measured by the Gambling Knowledge Scale;

4. gambling fallacies as measured by the Gambling Fallacies Scale;

5. knowledge and ability to calculate gambling odds as assessed by the Gambling Odds Scale;

6. gambling behaviour, i.e., type of gambling engaged in, time spent gambling, and amount of money spent gambling in the past 6 months;

7. problem gambling as measured by the nine-item Canadian Problem Gambling Index (CPGI) (Ferris & Wynne, 2001).

The Gambling Attitudes Scale is a three-item scale that measures people's belief about the morality of gambling and its harm versus benefit. It has good 1-month test-retest reliability as well as excellent concurrent and predictive validity. This scale was developed along with the Gambling Knowledge Scale, the Gambling Fallacies Scale, and the Gambling Odds Scale to study gambling in adult populations (Williams, 2003).

The Gambling Knowledge Scale is a 10-item scale assessing whether people are aware of the legalities of gambling, the different forms of gambling, the prevalence of problem gambling, the risk factors for developing problem gambling, where to get help for problem gambling, etc. It has very good test-retest reliability as well

as internal consistency (Williams, 2003).

The Gambling Fallacies Scale is a 10-item scale measuring awareness of and resistance to common gambling fallacies (e.g., "to win at gambling you need to think positively"). It has very good 1-month test-retest reliability, good internal consistency, and very good concurrent and predictive validity (Williams, 2003).

The Gambling Odds Scale is a 10-item scale with excellent 1-month test-retest reliability, internal consistency, and concurrent and predictive validity (Williams, 2003).

Results

Sample

Over 95% of the students completed the questionnaire. The final sample consisted of 585 students. Their average age was 21.7 (3.7 SD), and 61% were female. Racial/ethnic background was 81% European-Canadian, 8% Asian-Canadian, 4% Aboriginal, 4% other, 2% African-Canadian, and 1% Hispanic-Canadian. Thirty-four percent were management majors, 26% were science majors, 21% were social science majors, 9% were humanities majors, 5% were kinesiology/physical education majors, and 4% were education majors. Forty percent of students were in their first year, 22% in second year, 25% in third year, and 12% in fourth year. This is a very representative sample of the general student body with the exception of university year, where the sample contained a greater portion of first-year students.

Gambling behaviour

As seen in Table 1, 72.1% of the sample reported gambling in the past 6 months. The most common types of gambling engaged in were lotteries and instant win tickets (44%), followed by games of skill against other people (34%), video lottery terminals (VLTs) or slot machines (29%), and casino table games (26%). The average number of different types of gambling engaged in was 1.7 (median = 1; mode = 0).

Table 1
Gambling behaviour in the past 6 months

	Percentage of students involved	Average time spent	Average money spent
Any gambling	72	33.7 h	–$25.93
Lottery or instant win tickets	44	7.0 h (76 SD)	–$4.33 (34.4 SD)
Skill games against others	34	17.3 h (104 SD)	+$0.39 (29.5 SD)
VLTs or slot machines	29	7.3 h (87 SD)	–$5.23 (31.9 SD)
Casino table games	26	15.3 h (113 SD)	–$4.84 (39.1 SD)
Sports betting	17	7.1 h (86 SD)	–$1.88 (29.4 SD)
Bingo	8	3.8 h (63 SD)	–$2.54 (23.1 SD)
Horse racing	7	2.2 h (38 SD)	–$1.21 (21.7 SD)
Stock market	7	8.7 h (93 SD)	–$4.87 (41.1 SD)
Other	1	0.4 h (8 SD)	–$1.72 (22.4 SD)

Table 1 also reports the average total time spent on different gambling activities in the past 6 months (reported frequency multiplied by the average time spent per occasion). The average time spent was 33.7 total hours (1.5 hours median) for all types of gambling combined. Seven percent of students spent 40 hours or more gambling. The types of gambling that students spent the most time at were games of skill against other people (17.3 hours), casino table games (15.3 hours), the stock market (8.7 hours), and VLTs or slot machines (7.3 hours). In all cases, the averages are much higher than the medians due to a small percentage of gamblers with very high involvement in the activity. Median and modal time spent was zero for each activity.

The average total amount of money reported lost on all types of gambling in the past 6 months was $25.93 ($0 median). Eleven percent of students reported losing more than $100, and 1% reporting losing more than $1000. The types of gambling that students spent the most money on were VLTs or slot machines ($5.23), the stock market ($4.87), casino table games ($4.84), and lotteries or instant win tickets ($4.33). In all cases the median amount of money spent was zero. The average losses are low

partly because they are offset by small numbers of people reporting significant winnings on these activities.

Problem gambling

Using the CPGI, 1.4% of the total sample met criteria for severe problem gambling (CPGI 8+; roughly equivalent to pathological gambling) and another 6.2% met criteria for moderate-risk gambling (CPGI 3–7; equivalent to problem gambling). A further 16.9% were low-risk gamblers (CPGI 1–2), 47.4% were non-problem gamblers (CPGI 0), and 27.9% were nongamblers.

Characteristics differentiating gamblers from nongamblers

A direct logistic regression investigated characteristics differentiating the gamblers from the nongamblers. Eight predictor variables were used: age, sex, ethnicity, university major, university year, attitudes toward gambling, number of gambling fallacies, and skill at calculating gambling odds. The 12 cases with missing values for age and the 7 cases with missing values for university year were imputed using linear trend at point. To reduce the impact of outliers, students older than 27 were recoded as age 27. There were 352 gamblers and 142 nongamblers available for the analysis.

A test of the full model with all eight predictors against a constant-only model was statistically reliable ($\chi 2$ (19, N = 494) = 104.4, p < .0001), indicating that the eight predictors, as a set, reliably distinguished between gamblers and nongamblers. The variance accounted for was modest, with Nagelkerke R squared = .27. Overall prediction success was 75.5%. Table 2 shows regression coefficients, Wald statistics, and odds ratios for each of the eight predictors. According to the Wald criterion, only three variables reliably predicted gambling: more positive attitudes toward gambling (z = 47.5, p < .001), university major (z = 10.5, p < .05), and superior ability to calculate gambling odds (z = 4.7, p < .05). The percentage of students who were gamblers as a function of university major was as follows: kinesiology/physical education (82%), management (82%), education (74%), social science (72%), science (66%), and humanities (56%).

Table 2
Logistic regression of characteristics differentiating gamblers from nongamblers

Variable	Regression coefficients (*B*)	Wald statistics	Odds ratios
Age	.03	0.2	1.0
Ethnicity (European = reference)			
Asian	–	6.7	–
Aboriginal			
Other			
Major (science = reference)			
Management			
Social science	–	10.5*	–
Humanities			
Kinesiology			
Education			
University year	–	7.3	–
Gender	–.46	3.3	0.6
Gambling attitudes	.51	47.5**	1.7
Gambling fallacies	.03	0.2	1.0
Gambling math skill	.20	4.7*	1.2
CONSTANT	4.30	3.2	70.1

*p < .05; **p < .01

Characteristics differentiating problem gamblers from non-problem gamblers

A direct logistic regression investigated characteristics differentiating problem and pathological gamblers from gamblers who had not experienced any adverse consequences. Eight predictor variables were used: age, sex, ethnicity, university major, university year, attitudes toward gambling, number of gambling fallacies, and skill at calculating gambling odds. The 12 cases with missing values for age and the 7 cases with missing values for university year were imputed using linear trend at point. To reduce the impact of outliers, the students older than 27 were recoded as age 27.

A test of the full model with all eight predictors against a constant-

only model was statistically reliable (χ2 (18, *N* = 352) = 79.9, *p* < .001), indicating that the eight predictors, as a set, reliably distinguished between problem gamblers and non-problem gamblers. The variance accounted for was moderate, with Nagelkerke *R* squared = .40. Overall prediction success was 91.2%. Table 3 shows regression coefficients, Wald statistics, and odds ratios for each of the eight predictors. According to the Wald criterion, five variables reliably predicted problem gambling: more positive attitudes toward gambling (*z* = 23.7, *p* < .001), ethnicity (41% of Asian gamblers were problem gamblers) (*z* = 15.4, *p* < .01), university major (18% of kinesiology majors, 18% of education majors, and 14% of management majors were problem gamblers) (*z* = 14.6, *p* < .05), superior ability to calculate gambling odds (*z* = 6.2, *p* < .05), and older age (*z* = 4.1, *p* < .05).

Table 3
Logistic regression of characteristics differentiating problem gamblers from non-problem gamblers

Variable	Regression coefficients (*B*)	Wald statistics	Odds ratios
Age	.19	4.1*	1.2
Ethnicity (European = reference)			
Asian	–	15.4**	–
Aboriginal			
Other			
Major (science = reference)			
Management			
Social science	–	14.6*	–
Humanities			
Kinesiology			
Education			
University year	–	6.8	–
Gender	–.86	3.0	0.4
Gambling attitudes	.56	23.7**	1.7
Gambling fallacies	–.01	0	1.0
Gambling math skill	.33	6.2*	1.4
CONSTANT	–7.60	0.1	0.001

*p < .05; **p < .01

Discussion

Gambling is a common activity among university students, with 72% having done so in the past 6 months. The most common types of gambling were lotteries and instant win tickets, followed by games of skill against other people. However, most students who gambled indicated that they spent very little time and money doing so. The types of gambling that occupied the most time were games of skill against other people and casino table games. The types of gambling associated with the greatest spending were VLTs and slot machines, the stock market, and casino table games. Consistent with prior research, it would appear that for most students gambling is a fairly innocuous activity, done primarily for entertainment purposes (Neighbors, Lostutter, Cronce, & Larimer, 2002; Kang & Hsu, 2001).

The overall percentage of gamblers in the present study is slightly lower than that found in most other studies. This between-jurisdiction difference potentially reflects a variety of different factors, including (1) the number and type of easily available gambling opportunities, (2) the demographics of the gambling population, (3) the nature of local gambling legislation and its impact upon gambling behaviour, and (4) the respective cultural and ethnic composition of the groups of university students being surveyed. With respect to this last factor, the University of Lethbridge is situated in a region with lower rates of gambling compared to the rest of the province (Smith & Wynne, 2002, 2004). A significant minority of the student body and the population of southern Alberta are members of the Latter Day Saints, a religious group that strongly proscribes gambling behaviour.

The preferred forms of gambling in the present study are consistent with what has been found previously. The most popular gambling activity for college and university students as well as adults appears to be lotteries (Engwall et al., 2002; Kang & Hsu, 2001; Ladouceur et al., 1994). The five most common gambling activities in the studies mentioned above were lotteries, casinos, playing cards, slot/poker machines, and skill games, but these did vary somewhat in order of preference between studies. It is more difficult to make comparisons to other studies regarding time and money spent, as extant studies on these issues address mostly casino gambling (e.g., Bailey et al., 1997; Kang & Hsu, 2001). Nonetheless, consistent with the present research, it does not appear that a great deal of time and money is being lost to gambling.

While gambling is innocuous for most, it is apparent that a significant minority of students are heavy gamblers who experience adverse consequences from it. Seven and one-half percent of

students were classified as problem or pathological gamblers. Similar to prior research, the rate of problem/pathological gambling in university students is higher than in the general population. Despite being in a region with less gambling, University of Lethbridge students have a rate of problem/pathological gambling 2.3% higher than the 5.2% rate for Albertan adults (Smith & Wynne, 2002). The rates of problem/pathological gambling in the present study are lower than reported in other studies of college and university students. The reasons are undoubtedly the same reasons that the rate of gambling is somewhat lower. The other difference is that most other studies have used the South Oaks Gambling Screen (Lesieur & Blume, 1987) or variations thereof, while this is the only study that has used the newly created CPGI.

There has been very little prior research concerning variables that discriminate between college/university gamblers and nongamblers or problem gamblers and non-problem gamblers. In the present study, having a more positive attitude toward gambling was the best predictor of both being a gambler and being a problem gambler. This is not an unexpected finding, although it is interesting that people experiencing problems still maintain a more positive attitude than people not experiencing problems.

The higher rates of gambling and problem gambling for kinesiology and management majors is an interesting finding that has not been reported in previous research. However, what have been previously reported are higher rates of problem gambling in student athletes, presumably due to a greater propensity for risk taking (Engwall et al., 2002; Rockey, Beason, & Gilbert, 2002). It is not unreasonable to anticipate that a significant portion of students pursuing a kinesiology/physical education degree are also student athletes. Risk taking might also characterize people interested in business management degrees. Alternatively, the relationship between gambling and business management interests may be due to a common interest in making money.

The relationship between superior ability to calculate gambling odds and both gambling and problem gambling is a puzzling one. It is possible that mathematically skilled individuals feel they possess the necessary competence to gamble relatively successfully. However, one would think that more mathematically knowledgeable students would also be more cognizant of the negative mathematical expectation for most forms of gambling. The link between older age and problem gambling could be because it takes some time for gambling to develop into a problem. Alternatively, older students may have either higher incomes or higher debt loads, which might create a greater predilection to gamble. The link between Asian heritage and problem gambling is something that has been previously found in the literature (Lesieur et al., 1991), as well as in general population surveys.

References

Adebayo, B. (1998).
Luck of the dice: Gambling attitudes of a sample of community college students. *College Student Journal, 32*, 255–257.

Bailey, E.A., Burroughs, S.W., Dabit, J.S., Hambrick, R.S., & Theriot, P.B. (1997).
The lure of casino gambling and its potential impact on college students in Mississippi. *College Student Affairs Journal, 17*, 81–91.

Devlin, A.S., & Peppard, D.M. (1996).
Casino use by college students. *Psychological Reports, 78*, 899–906.

Douglas, K.A., Collins, J.L., Warren, C., Kann, L., Gold, R., Clayton, S., et al. (1997).
Results from the 1995 National College Health Risk Behavior Survey. *Journal of American College Health, 46*, 55–66.

Engwall, D., Hunter, R., & Steinberg, M. (2002).
Gambling and other risk behaviors on university campuses. Retrieved February 19, 2004, from http://www.responsiblegambling.org/articles/gambling_and_other _risk_behaviors_on_university.pdf

Ferris, J., & Wynne, H. (2001).
The Canadian Problem Gambling Index: Final report. Submitted for the Canadian Centre on Substance Abuse. February 19, 2001.

Gerstein, D., Volberg, R.A., Murphy, S., Toce, M., Hoffmann, J., Palmer, A., et al. (1999).
Gambling impact and behavior study: Report to the National Gambling Impact Study Commission. Chicago: National Opinion Research Center at the University of Chicago.

Kang, S.K., & Hsu, C.H.C. (2001).
University students' perceptions on legalized gambling and their casino gaming behaviors. The Consortium Journal, 5, 5–16.

LaBrie, R.A., Shaffer, H.J., LaPlante, D.A., & Wechsler, H. (2003).
Correlates of college student gambling in the United States. *Journal of American College Health, 52*, 53–63.

Ladouceur, R., Dube, D., & Bujold, A. (1994).
Prevalence of pathological gambling and related problems

among college students in the Quebec metropolitan area. *Canadian Journal of Psychiatry, 39*, 289–293.

Lesieur, H.R., & Blume, S.B. (1987).
The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry, 144*, 1184–1188.

Lesieur, H.R., Cross, J., Frank, M., Welch, M., White, C.M., Rubenstein, G., et al. (1991).
Gambling and pathological gambling among university students. *Addictive Behaviors, 16*, 517–527.

Neighbors, C., Lostutter, T.W., Cronce, J.M., & Larimer, M.E. (2002).
Exploring college student gambling motivation. *Journal of Gambling Studies, 18*, 361–371.

Neighbors, C., Lostutter, T.W., Larimer, M.E., & Takushi, R.Y. (2002).
Measuring gambling outcomes among college students. *Journal of Gambling Studies, 18*, 339–360.

Oster, S.L., & Knapp, T.J. (1998).
Underage and pathological gambling by college students: Emerging problem on campus? *Psychology and Education, 38*, 15–19.

Productivity Commission (1999).
Australia's gambling industries, Report No. 10. Canberra: AusInfo.

Rockey, D.L., Beason, K.R., & Gilbert, J.D. (2002).
Gambling by college athletes: An association between problem gambling and athletes. *Electronic Journal of Gambling Issues*, Issue 7, December 2002. Retrieved August 21, 2005, from http://www.camh.net/egambling/issue7/research/college_gambling.html

Rönnberg, S., Volberg, R.A., Abbott, M.W., Moore, W.L., Andren, A., Munck, I., et al. (1999).
Gambling and problem gambling in Sweden. Report No. 2 of the National Institute of Public Health Series on Gambling. Stockholm: National Institute of Public Health.

Shaffer, H.J., & Hall, M.N. (2001).
Updating and refining meta-analytic prevalence estimates of disordered gambling behavior in the United States and Canada. *Canadian Journal of Public Health, 92* (3), 168–172.

Shaffer, H.J., Hall, M.N., & VanderBilt, J. (1997).

Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health, 89*, 1369–1376.

Smith, G., & Wynne, H. (2002).
Measuring gambling and problem gambling in Alberta using the Canadian Problem Gambling Index. Edmonton, AB: Alberta Gaming Research Institute.

Smith, G., & Wynne, H. (2004)..
VLT gambling in Alberta: A preliminary analysis. Edmonton, AB: Alberta Gaming Research Institute. Retrieved August 21, 2005, from http://www.uofaweb.ualberta.ca/abgaminginstitute/pdfs/VLT_Gambling_Alberta.pdf

Williams, R.J. (2003).
Reliability and validity of four scales to assess gambling attitudes, gambling knowledge, gambling fallacies and ability to calculate gambling odds. Unpublished technical report. Lethbridge, Alberta. Available from author.

Wynne, H.J. (2000).
Gambling on the edge in Alberta. *eGambling: The Electronic Journal of Gambling Issues*, Issue 1, March 2000. Retrieved August 19, 2005, from http://www.camh.net/egambling/issue1/policy/

For correspondence: Dr. Robert Williams
Alberta Gaming Research Institute, 102 Anderson Hall, University of Lethbridge, Lethbridge, Alberta, Canada, T1K 3M4. E-mail: Robert.williams@uleth.ca

Submitted: February 29, 2004. All URLs were available at the time of submission. Accepted: April 18, 2005. This article was peer reviewed.

Dr. Robert Williams, PhD, School of Health Sciences & Alberta Gaming Research Institute, University of Lethbridge, Lethbridge, Alberta T1K 3M4 Canada. Phone:
403-382-7128, fax: 403-329-2668, e-mail: robert.williams@uleth.ca

Competing interests: None declared.

Contributors: RW was responsible for the research design, data analysis and writing the manuscript, DC, R. Wood, and NN all contributed to the research design and data collection.

Ethical approval: The University of Lethbridge Human Subjects Research Committee provided approval for this project in 2002 as

part of the approval for the project “Impact of statistical knowledge on the gambling behaviour of university students.”

Funding: Funding for this project was provided by the Alberta Gaming Research Institute.

Dennis Connolly, PhD is an associate professor in the Department of Mathematics & Computer Science at the University of Lethbridge.

Robert Wood, PhD is an assistant professor in the Department of Sociology at the University of Lethbridge.

Nadine Nowatzki, MA is a research associate in the School of Health Sciences at the University of Lethbridge.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI.* To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

research

Gender differences in problem gambling behaviour from help-line callers

Jill Heater & David Patton, Addictions Foundation of Manitoba, Winnipeg, Manitoba, Canada. E-mail: dpatton@afm.mb.ca

Abstract

The province of Manitoba, Canada, has operated a province-wide Problem Gambling Help-Line 24 hours a day, 7 days a week, since 1993. The present study looked at gender differences in a sample of help-line callers. A total of 97 callers (59 men and 38 women) were asked 34 questions. The results showed both similarities and differences among men and women. The most popular gambling activity for all callers was video lottery terminals (71%). Male and female callers had similar background demographics and had both experienced numerous financial, relationship, and work problems as a result of their gambling. Some gender differences were found. Female callers reported a shorter duration of their gambling problem compared to male callers. Higher numbers of men than women gambled in bars, hotels, and restaurants. Overall, the results contribute to an understanding of gender differences in problem gambling. **Key words**: women and gambling, gambling help-line, gender differences

Introduction

The literature shows that more men than women have a gambling problem. In fact, it is estimated that over twice as many men as women have a gambling problem (Brown & Coventry, 1997; Potenza et al., 2001). Overall, the combined proportion of men and women with a pathological gambling problem in the general population is estimated to be anywhere from 1% to 4% (American Psychiatric Association, 1994; Patton, Brown, Dhaliwal, Pankratz, & Broszeit, 2002).

The higher prevalence rates for men with problem gambling may in part explain why there is more research into the behaviours and correlates of problem gambling using male gamblers.

Commensurate with the gender dominance of research on men who are problem gamblers is the recognized paucity of research on women who are problem gamblers (Tavares, Zilberman, Beites, & Gentil, 2001). This makes it difficult to develop appropriate and effective prevention programs and treatments that are gender specific (Tavares et al., 2001). The present study will look at several salient issues around problem gambling for both men and women to help foster a greater understanding of women and gambling.

Interestingly, within the past decade, gambling has become more feminized and socially acceptable for women. Past gambling domains, such as racetracks, sports venues, and betting shops, were more masculine and generally less attractive to women. Currently, there are more legalized and accessible venues to gamble, such as casinos, hotel bars, and restaurant lounges. Casinos include lounges that provide meals and musical entertainment, in addition to an ambience that is more gender neutral than racetracks and sporting events. By the mid-1990s, only a few years after the first casino opened in Canada, the province of Manitoba had the most video lottery terminals (VLTs) per capita in Canada (Wenger, McKechnie, & Kaplan, 1996). The increased accessibility and social acceptability of gambling is likely responsible for the fact that more women are gambling, which in turn has placed more women at risk for becoming problem gamblers. As a result, research on gambling using female participants is increasing (Trevorrow & Moore, 1998).

Research on women and gambling has shown some notable gender differences in the types and behavioural correlates of gambling (Hing & Breen, 2001; Hraba & Lee, 1996; Tavares et al., 2001). For instance, within the general gambling population, women typically engage in fewer types of gambling. Hraba and Lee (1996) found that the primary type of gambling that women engaged in was bingo, whereas males were more likely to gamble on the stock market or on sporting events. With regard to casino games, studies have shown that women prefer electronic gaming machines (EGMs), whereas men prefer table games (Hing & Breen, 2001). Women's preference for particular types of gambling may be related to the social acceptability or location of games. Trevorrow and Moore (1998) postulated that women would be more likely to gamble in hotels and casinos, where the atmosphere is clean, safe, and attractive, which in turn may restrict the type of games to be played.

Men and women also differ in their reasons for gambling. Women have been traditionally designated as escape gamblers; that is, they gamble to escape their problems (Davis, 2002). Women prefer games that maximize their playing time (e.g., EGMs) and on which they will spend less money (Hing & Breen, 2001; Trevorrow &

Moore, 1998). It has been suggested that women's motivation to gamble primarily comes from boredom, loneliness, and isolation, which may explain why women prefer playing games that maximize their playing time (Brown & Coventry, 1997; Trevorrow & Moore, 1998). The longer women spend gambling at a sitting, the less time there will be to be bored and to notice feelings of isolation and loneliness. Men, however, have been traditionally designated as action gamblers (Davis, 2002). Men are more likely to report that their attention to gambling is based on the need for excitement (sensation seeking and risk taking) or a misguided effort to make money.

Gender differences also emerge within the problem gambling population. First, women seeking help for their problem gambling have reported a shorter history of problem gambling than men who are seeking help for their problem gambling (Potenza et al., 2001; Tavares et al., 2001). Second, the types of gambling that men and women have problems with tend to be the games that they play most frequently (i.e., men with noncasino games and women with casino games; Brown & Coventry, 1997; Potenza et al., 2001). When the types of games are limited to the casino, men have more problems associated with table games and women have more problems associated with slot machines (Potenza et al., 2001). Third, there are marked gender differences in the perceived consequences of problem gambling. Women were more likely than men to report anxiety and suicide attempts as a result of gambling (Potenza et al., 2001). Women also had higher reports of financial problems as a result of gambling, despite the fact that both men and women report high rates of financial problems (Potenza et al., 2001). Finally, women with gambling problems had lower rates of associated arrests and drug and alcohol problems, suggesting that their problem gambling is more of an isolated behavioural issue (Potenza et al., 2001).

The primary objective of this study is to assess the gender differences of perceived problem gambling using data from help-line callers. This study will help solidify past research by comparing male and female help-line callers' demographics and their preferred type of gambling, and the associated behaviours, mental health correlates, and consequences of gambling. Based on past research on gender differences in gambling, it was hypothesized that female help-line callers would differ from male help-line callers in terms of the duration of their perceived gambling problems, the types of games they played, where they gambled, the amount of money they spent while gambling, their mental health correlates, and the consequences of gambling.

Method

The Addictions Foundation of Manitoba (AFM), a crown agency of the province, operates the Problem Gambling Help-Line 24 hours a day, 7 days a week, from its central office. This help-line is available toll free from anywhere in the province. The help-line is staffed by trained addictions counsellors. The help-line has been described in greater detail elsewhere (Heater & Smitheringale, 2003).

Data were continually gathered from calls made during the fiscal year of 2001–2002. Data from each call consisted of the caller's gender, the person the caller was concerned about, and the time of the call. However, for two months of the year, more extensive information was collected. Present analyses of gender differences were primarily drawn from these two months. During these two months, staff were provided with scripted questions to ask callers. All callers had several responses to choose from for each question. However, if a response did not fit into a particular category, it could be manually entered. Help-line staff asked each caller at the beginning of the call if they would answer some more in-depth questions about the nature of the current help-line call for research purposes. Callers were informed that their responses would be anonymous. The callers had to give their consent before the staff proceeded with the questions. Thirty-four additional questions were asked, covering five general categories:

1. demographics such as the length of call, age of caller, language spoken, and employment status;

2. gambling behaviours such as the money spent and the type, location, and frequency of gambling;

3. the length of concern;

4. mental health correlates such as anxiety, depression, stress, and suicidality;

5. the consequences of gambling such as relationship, work, legal, and financial problems.

The main form of statistical analyses used was chi square because of the categorical nature of the data. Chi square analyses were conducted within each of the five categories to determine gender differences among gambling behaviour and correlates.

Results

A total of 3747 calls were made to the AFM Problem Gambling Help-Line in the fiscal year of 2001–2002. The greatest number of calls made was for help (*N* = 1836). Other calls were for gaming-related information (*N* = 749) or general information (*N* = 337), or were prank/hang-up calls (*N* = 824). Over the entire year, slightly more women (*N* = 982) called for help than men (*N* = 881). This contrasts with six years ago, when only about a third of calls made to the help-line were from women.

The overall increase in female callers to the help-line may be due in part to two factors. First, a greater percentage of women (71.5%, *N* = 441) called concerned about another's gambling (usually a spouse or partner) than men (28.5%, *N* = 176). This is consistent with the stereotype of women as caregivers, as well as being more likely to seek help when in a difficult predicament. More women may be calling concerned about another's gambling than men because higher numbers of men are reported with problem gambling (Potenza et al., 2001; Tavares et al., 2001). Thus, perhaps the female partners of these problem gamblers call the help-line for assistance. Second, about equal percentages of calls were made from those concerned about their own gambling (women = 43.4%, *N* = 541; men = 56.6%; *N* = 705). The approximately equal number of calls made by female gamblers to the help-line is higher than in previous studies (Griffiths, Scarfe, & Bellringer, 1999; Potenza et al., 2001). It is possible that more women are calling the help-line regarding their own gambling because of the growing number of women gambling in general (Trevorrow & Moore, 1998).

As mentioned, gender differences in gambling from the help-line callers were analyzed using the more detailed data collected in November 2001 and March 2002. A total of 97 calls were received from callers concerned about their own gambling and 48 calls were received from callers concerned about another's gambling. Of the 97 calls made by gamblers during these two months, 59 (61%) were from men and 38 (39%) were from women.

Caller demographics

Male and female callers were not statistically different in terms of length of call, language spoken, age, or employment status. However, women, on average, had slightly shorter length of calls (M = 18.5 min) than did men (*M* = 21.5 min; $F(1, 89) = 1.80$, *ns*). Women had a slightly narrower age range than men (22–58 years and 18–62 years, respectively), yet the average age of male (*M* = 40 years) and female (*M* = 39 years) callers was similar ($F(1, 77) = .12$, *ns*). Both men and women predominantly spoke English.

Finally, the majority of callers were employed full-time; male and female callers were similar in terms of employment status (χ^2 = 4.75, *df* = 6, *ns*).

Gambling behaviours

Several gender differences emerged in terms of the types and location of games played that were associated with the callers' perceptions of problem gambling (see Table 1). Interestingly, there were no differences between male and female callers' time (χ^2 = 6.11, *df* = 4, *ns*) and money (χ^2 = 5.04, *df* = 6, *ns*) spent on gambling. Male and female help-line callers gambled on average 5 to 10 days per month and spent $51 to $100 each time they gambled.

Contrary to past research on EGMs (Hing & Breen, 2001), more men than women called regarding their VLT play (χ^2 = 3.95, *df* = 1, *p* < .05). There were no gender differences in calls about Keno (χ^2 = 3.10, *df* = 1, *ns*), slots (χ^2 = .34, *df* = 1, *ns*), electric bingo (χ^2 = .30, *df* = 1, *ns*), table games (χ^2 = 2.22, *df* = 1, *ns*), Sports Select (χ^2 = .66, *df* = 1, *ns*), lottery tickets (χ^2 = .05, *df* = 1, *ns*), scratch tickets (χ^2 = .36, *df* = 1, *ns*), or horse racing (χ^2 = 2.01, *df* = 1, *ns*). These types of gambling were rarely identified as the reason the individual had contacted the help-line. Most often callers were concerned about their own, or someone else's, VLT preoccupation.

There was one notable gender difference in where callers typically gambled. More than twice as many men as women reported that they gambled in hotels, bars, and restaurant lounges (χ^2 = 6.78, *df* = 1, *p* < .05). There were no gender differences in other gambling locations, such as the casino (χ^2 = 3.68, *df* = 1, *ns*), racetrack (χ^2 = 1.33, *df* = 1, *ns*), lottery outlet (χ^2 = .10, *df* = 1, *ns*), and bingo hall (χ^2 = .20, *df* = 1, *ns*).

Table 1
Gender differences in type and location of gambling from help-line callers

-	Male (*N* = 57) % gambled	Female (*N* = 37) % gambled	χ^2
Type of gambling			
VLTS	80.7	62.2	3.95*
Slots	19.3	24.3	0.34
Keno	7.0	18.9	3.10
Electronic bingo	5.3	8.1	0.30
Table games	1.8	8.1	2.22
Sports Select	1.8	0.0	0.66
Lottery tickets	3.5	2.7	0.05
Scratch tickets	5.3	2.7	0.36
Horse racing	5.3	0.0	2.01
Informal betting	0.0	0.0	–
Internet	0.0	0.0	–
Location of gambling			
Hotel/bar/restaurant	77.2	51.4	6.78*
Winnipeg Casino	31.6	51.4	3.68
Lottery outlet	7.0	5.4	0.98
Assiniboia Downs	3.5	0.0	1.33
Bingo halls	3.5	5.4	0.20

*p < .05.

Length of perceived gambling problem

Consistent with past research on help-line callers (Potenza et al., 2001), male callers in the present study had a longer history of perceived problem gambling than female callers (χ^2 = 17.68, *df* = 5, *p* < .01). A greater percentage of male callers (69%) were concerned about their gambling for more than two years compared with female callers (44%). Female callers were more likely to be concerned about gambling that had begun within the past one to two years.

Mental health correlates

Gender comparisons on mental health issues yielded both expected and unexpected findings. It was unexpected that there was no statistically significant gender difference in reported anxiety (χ^2 = .36, *df* = 1, *ns*), depression (χ^2 = .41, *df* = 1, *ns*), and stress (χ^2 = 1.56, *df* = 1, *ns*). About 5% of the male and female callers reported that they were receiving help for anxiety, 2% for stress, and 11% for depression. However, there was a gender difference in concerns around alcohol and other drug use. Specifically, more men (24.6%) reported concerns with their drug and alcohol use (χ^2 = 4.10, *df* = 1, *p* < .05) and a greater number of men (10.5%) were

receiving help for their alcohol problems (χ^2 = 4.16, *df* = 1, *p* < .05), compared with women. Only 8% of women had concerns about their own alcohol and drug problems and no women were receiving help for alcohol and drug problems.

In terms of suicide, there was no difference between male and female callers who had ever thought about hurting themselves (χ^2 = .12, *df* = 1, *ns*). About a third of both male and female callers had thought of hurting themselves. Although more female callers tended to be currently thinking of hurting themselves (11% vs. 2% of male callers), this difference was not statistically significant (χ^2 = 3.65, *df* = 1, *ns*).

Consequences of gambling

Most of the callers were experiencing a variety of consequences of gambling, but there were no gender differences in financial (χ^2 = 1.22, *df* = 1, *ns*), relational (χ^2 = 4.15, *df* = 2, *ns*), or work/school (χ^2 = 1.65, *df* = 2, *ns*) concerns. Female callers were just as likely to experience the negative consequences of gambling as male callers.

Almost all of the callers were experiencing financial problems due to gambling, with unpaid bills being the primary source of financial concern. Of the 90.1% of callers with financial concerns, 63.4% had unpaid bills, 22.8% had little or no food money, and 28.7% had credit card debt, and 19.8% had pawned goods and 12.9% had written NSF cheques. There were no differences in this regard. Over half of the callers (58.4%) reported relationship concerns with a spouse or partner due to gambling, i.e., relational arguments (42.6%), lies about gambling or financial situation (31.7%), and risk of relationship termination (21.8%). Fewer callers had relationship difficulties with other family members (33.7%). Further, 25% of callers reported concerns with work or school because of gambling and only 7% reported legal concerns.

Discussion

With the increased social acceptance of gambling and improved access due to the availability of VLTs in lounges and casinos, gambling-related problems may become more prevalent in the population. In order to facilitate access to help and information about gambling, Manitoba has operated a problem gambling help-line since 1993. The results of the present study are based on one of many dimensions of the data being collected from help-line callers. Because of the lack of information on female gambling issues, this report has focused on gender differences in the use of this help-line.

In contrast with previous reports, slightly more women than men called the help-line, yet they were more likely to call because they were concerned about someone else's gambling, usually their partner or spouse. However, compared with previous years on the help-line, more women were calling because they were concerned about their own gambling. In fact, the number of women calling because they were concerned about their own gambling (43.4%) was just slightly lower than the number of men (56.6%). This is a notable point because prevalence rates of problem gambling typically indicate that men are at least twice as likely to be classified as problem gamblers (Brown & Coventry, 1997).

There may be a higher gender ratio of calls to the help-line compared with the gender ratio of problem gambling prevalence rates because women are generally more inclined to seek out help for their problems than are men. Research shows that women typically seek out treatment and help for mental health issues more often than men do (Crawford & Unger, 2000). Interestingly, though, women do not typically seek out treatment more than men do if the disorder is an addiction (Crisp et al., 2000). It has been suggested that women do not seek out treatment for addictions to the same extent as other mental health issues because of accessibility and societal acceptability. Residential or day programs that treat addictions do not always provide childcare and are not typically structured around treating women specifically. Further, women have to face societal stigma when accessing addictions treatment. In the present study, there may have been a similar number of calls between male and female gamblers because of the convenience, immediacy, and anonymity of the help-line. With the convenience of calling the help-line for support at any time, women would not have to worry about childcare or the shame of publicly going for addictions counselling.

The belief that women accessed the help-line at a greater rate than men is supported by the data showing that women experienced their gambling problems for shorter lengths of time than men did before calling the help-line. The average length of time that women were concerned with their problem gambling was from one to two years, whereas men were concerned for more than two years, on average. These results are consistent with other help-line data (Potenza et al., 2001). The implication is that women who have problems with gambling are more likely to seek out help sooner than men, which in turn may decrease their likelihood of developing a more intractable gambling problem. Perhaps it is the case that higher numbers of women gamble and experience negative consequences than have been reported in previous studies, but that these women are more likely to recognize the early stages of problem gambling and seek help. This explanation, however, contradicts Brown and Coventry (1997), who suggested that fewer women are identified as problem gamblers because they do not

access treatment at the same rate as men. Yet another potential explanation for why female callers may have experienced gambling problems for a shorter duration compared to male callers could be that their gambling problems may have progressed at a greater rate.

The high number of women calling the help-line and the primary reasons that they are calling suggest that treatment and prevention programs may need to focus on issues related to female involvement in gambling. Some of the salient issues to note for treatment and prevention may be the dominant type of games women play, where they gamble, and some of the consequences of gambling.

The primary type of gambling that women who called the help-line were concerned about was VLTs. Sixty-two percent of women callers were primarily concerned with their VLT playing, followed by 24.3% slot playing, and 18.9% Keno playing. Men also called the help-line primarily concerned with their VLT playing, even more often than women (80.7%). This high rate of VLT play is consistent with previous research on EGMs (Hing & Breen, 2001; Trevorrow & Moore, 1998). Further, women's high gambling rates on these three games (VLTs, slots, and Keno) are consistent with the explanation that women gamble out of boredom and tend to gamble with games that maximize their playing time. VLTs, slots, and Keno are relatively inexpensive games to play for extended periods of time compared to other forms of gambling (e.g., casino card games). Although there was no statistical difference, women had a greater tendency to call the help-line regarding casino games such as Keno, slots, table games, and electric bingo than men. Women never called concerned about more masculine games such as Sports Select and horse racing, whereas a small percentage of men did.

Based on previous research on women and gambling, it was thought that women would gamble more in casinos than in bars because casinos were believed to be more gender neutral and acceptable locations for women to go either alone or with friends (Brown & Coventry, 1997; Trevorrow & Moore, 1998). Conversely, the present data showed that the same amount of women gambled in hotels, bars, and restaurants as in casinos. It is difficult to ascertain if similar numbers of women gambled in bars and casinos because hotels, restaurants, and bars were all grouped as one category. It is possible that women gambled more in hotels and restaurants (more socially acceptable) than bars, which would make it appear that more women gambled in bars than they actually did. Future data collection from help-line callers should identify the location more specifically, so that direct comparisons of where women gamble can be made. Men, on the other hand, were more than twice as likely to have gambled in bars, hotels, and

restaurants as in casinos. Overall, men gambled more in restaurants, hotels, and bars than did women.

Knowing where women gamble and the types of gambling they typically engage in can help identify where advertising of prevention and treatment resources (e.g., help-line number) would be most useful. The most prevalent types of games and sites gambled by those who have a problem with gambling may also be a social factor to consider when contemplating the expansion of EGMs in various locations. The reasoning to expand EGMs may be questionable when data show that these games are the most likely to be associated with problem gambling.

In terms of the mental health correlates of gambling, there were few gender differences. This was unexpected because research on the prevalence of anxiety, depression, and stress generally shows higher rates in women than men (Barlow, 1993; Leahy & Holland, 2000). The current study showed no gender differences in reported rates of anxiety, depression, and stress, which is similar to Potenza and colleagues' findings (2001). Consistent with other research, more men than women called the help-line reporting alcohol and other drug use problems. In addition, although there was no statistical gender difference in suicidality, five times as many women were currently thinking of hurting themselves.

The overall rates of reported mental health concerns are believed to be somewhat low compared with other published correlates. Crockford and el-Guebaly (1998) reviewed 60 studies assessing psychiatric comorbidity and showed 13% to 28% of community problem gamblers with anxiety disorders and up to 33% with a mood disorder. In the current study, 5% of the help-line callers were receiving help for anxiety and 11% were receiving help for depression. These rates may be an underestimate of those who have anxiety and depression because only those who were receiving help for these concerns were included.

There were no gender differences in the consequences of gambling. The majority of male and female help-line callers were experiencing a wide variety of financial and relationship problems.

When interpreting the results of this study, it should be noted that there are methodological limitations. First, the data collected were from provincial help-line calls. This means that the data are not representative of all problem gamblers, but they are a selected sample of gamblers who perceived that they had a problem with gambling and called the help-line for assistance. Second, the data were based on callers' responses to questions, which are subject to interpretation biases and memory accuracy.

In summary, the high number of calls during the fiscal year of 2001–2002 to the Problem Gambling Help-Line reflects the accessibility and need for information and support around gambling issues. The need for and importance of the help-line is further emphasized by the results showing that 70% of callers had never gone for help regarding their gambling concerns before calling the help-line, even though the average length of concern was approximately two years.

In terms of women calling the help-line, a growing number are calling for both help for their own and concerns about another's gambling. Women calling the help-line concerned with their own gambling have both similarities to and differences from men. The more salient gender differences are the location of games played, the duration of the gambling problem, and drug and alcohol use. Men gambled more in hotels, bars, and restaurants and had experienced problem gambling for a longer period of time than women. Men also had greater concerns with their drug and alcohol use. The main similarities between men and women were the consequences of gambling, mental health correlates, and that gambling concerns were primarily related to VLT play. In all, the data show that both men and women experience problems with gambling, yet their problems are not entirely the same.

References

American Psychiatric Association. (1994).
Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Barlow, D. (Ed.). (1993).
Clinical handbook of psychological disorders (2nd ed.). New York: Guilford Press, Inc.

Brown, S., & Coventry, L. (1997).
Queen of hearts: The needs of women with gambling problems. Melbourne, Australia: Financial and Consumer Rights Council.

Crawford, M., & Unger, R. (2000).
Women and gender: A feminist psychology (3rd ed.). New York: McGraw-Hill.

Crisp, B., Thomas, S., Jackson, A., Thomason, N., Smith, S., Borrell, J., et al. (2000).
Sex differences in the treatment needs and outcomes of problem gamblers. *Research on Social Work Practice, 10*, 229–242.

Crockford, D., & el-Guebaly, N. (1998).
Psychiatric comorbidity in pathological gambling: A critical

review. *Canadian Journal of Psychiatry, 43*, 43–50.

Davis, D. (2002).
The queen of diamonds: Women and compulsive gambling. In S. Straussner & S. Brown (Eds.), *The handbook of addiction treatment for women* (pp. 99–126). San Francisco: Jossey-Bass.

Griffiths, M., Scarfe, A., & Bellringer, P. (1999).
The UK national telephone gambling helpline—Results on the first year of operation. *Journal of Gambling Studies, 15*, 83–90.

Heater, J., & Smitheringale, B. (2003).
Addictions Foundation of Manitoba Problem Gambling Help-Line review 2001–2002. Winnipeg, Canada: Addictions Foundation of Manitoba.

Hing, N., & Breen, H. (2001).
Profiling lady luck: An empirical study of gambling and problem gambling amongst female club members. *Journal of Gambling Studies, 17*, 47–69.

Hraba, J., & Lee, G. (1996).
Gender, gambling and problem gambling. *Journal of Gambling Studies, 12*, 83–101.

Leahy, R., & Holland, S. (2000).
Treatment plans and interventions for depression and anxiety disorders. New York: Guilford Press, Inc.

Patton, D., Brown, D., Dhaliwal, J., Pankratz, C., & Broszeit, B. (2002).
Gambling involvement and problem gambling in Manitoba. Manitoba, Canada: Addictions Foundation of Manitoba.

Potenza, M., Steinberg, M., McLaughlin, S., Wu, R., Rounsaville, B., & O'Malley, S. (2001).
Gender-related differences in the characteristics of problem gamblers using a gambling helpline. *American Journal of Psychiatry, 158*, 1500–1505.

Tavares, H., Zilberman, M., Beites, F., & Gentil, V. (2001).
Gender differences in gambling progression. *Journal of Gambling Studies, 17*, 151–159.

Trevorrow, K., & Moore, S. (1998).
The association between loneliness, social isolation and women's electronic gaming machine gambling. *Journal of Gambling Studies, 14*, 263–284.

Wenger, L., McKechnie, B., & Kaplan, G.S. (1996).

Fastfacts on gambling. Manitoba, Canada: Addictions Foundation of Manitoba.

Manuscript history: submitted July 5, 2004; accepted March 15, 2005. This article was peer reviewed.

For correspondence: David Patton, Ph.D., 1031 Portage Ave., Winnipeg, Manitoba R3G 0R8 Canada. Phone: (204) 944-6291, fax: (204) 786-7768, e-mail: dpatton@afm.mb.ca

Contributors: Both authors collaborated on this paper and assume responsibility for it.

Competing interests: None declared.

Ethics approval: Granted by an internal ethics committee from the Addictions Foundation of Manitoba.

Funding: Manitoba Lotteries Corporation.

Jill Heater is a school psychologist in Winnipeg, Manitoba. Prior to this, she worked as a researcher at the Addictions Foundation of Manitoba. She received her PhD from the University of Victoria.

David Patton is the research director at the Addictions Foundation of Manitoba. He received his PhD from the University of Manitoba.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

research

Faro: A 19th-century gambling craze

Nigel E. Turner, Centre for Addiction and Mental Health, Toronto, Ontario, Canada.
E-mail: Nigel_Turner@camh.net

Mark Howard, International Police Association, San Francisco Bay Area, California, U.S.A.

Warren Spence, Centre for Addiction and Mental Health, Toronto, Ontario, Canada.

Abstract

We examine an extinct game of chance known as faro for clues that might help us understand modern gambling. By all accounts, faro has gone from being the most common game of chance and the most common casino gambling game in the United States during the 19th century to being almost nonexistent and nearly forgotten. It is so much forgotten, in fact, that films about the Old West usually show cowboys or miners playing poker. Only recently have images of faro made their way back into movies. We examine why the game was popular, as well as the role of cheats, who likely contributed to its demise. Through a combination of historical records and computer simulations, we evaluate mistaken beliefs about the profitability of the game and find that if played honestly, faro can yield a profit for the casino comparable to other table games. We also explore what lessons we can draw from this game. Of particular interest are the parallels between faro and our modern experience with electronic gambling machines. **Key words**: history of gambling, problem gambling, faro.

Introduction

In our modern age, we can sometimes be lulled into believing that today's society is utterly different from that of the past. In some respects, this is true. There was no 19th-century equivalent of voice mail or Bluetooth connectivity (wireless Internet and telecommunications). But human nature has not really changed all that much.

Today's newspapers and journals run stories about the seductive nature of slot machines, video lottery terminals (VLTs), and other electronic gambling machines (EGMs) (e.g., Green, 2004; Murse, 2004; Dorion & Nicki, 2001; Turner & Horbay, 2004), and most recently with Internet poker. Several articles on pathological gambling have noted the unprecedented growth of the gambling industry in recent years (e.g., Wynne & Shaffer, 2003; Korn, Gibbins, & Azmier, 2003), while others have noted that today's children are growing up as the first generation to be exposed to wide-open gambling (e.g., Gupta & Derevensky, 1998; Stinchfield, 2003). In a recent conference on problem gambling, a speaker asserted that problem gambling was only really an issue with "electronic" forms of gaming.

But gambling has existed for thousands of years. Can we learn about the nature of gambling problems by examining the past?

One hundred and seventy years ago, and more than fifty years before the invention of the mechanical slot machine, the game of choice for gambling in America was not poker, craps, lotteries, or roulette, but faro.

Faro was the mainstay of every important gambling house north of the Rio Grande, and the ruin of thousands who tried to beat it. No other card or dice game, not even poker or craps, has ever achieved the popularity in this country that Faro once enjoyed, and it is extremely doubtful if any has equalled Faro's influence upon American gambling or bred such a host of unprincipled sharpers (Asbury, 1938, p. 6).

According to Briggs (2002), "if you had gone to any American gambling town around the time of the Civil War—and almost *every* town was a gambling town at that time—the most popular game by far would have been faro."

Before the invention of the slot machine, the game of faro held the dubious honour of being the leading cause of premature bankruptcy in America. According to Arnold (1978), it was the most popular game in America in the last half of the 19th century. Faro was by no means limited to the United States, but was a worldwide phenomenon. It was banned in France in 1691, in England in 1738, and in the United States at numerous times (Asbury, 1938). Faro was at least in part responsible for the antigambling riots in the Mississippi Valley in the 1830s that resulted in the lynching of several professional gamblers. But somehow it always reemerged to despoil the next generation of players.

Faro was a casino card game but it was played in a manner quite different from any of the common gambling games available today.

Faro was a "banking" game in which any number of players could play against the dealer or the house, referred to as the "bank." But in the 1800s, there was often no clearcut distinction between the person dealing (or banking) the game and the players. Faro dealers often travelled with their gaming equipment from town to town, setting up their faro banks and often risking their personal fortunes in a saloon for a fee or running a "house" bank in exchange for a piece (percentage) of the action (Howard, 2004). In one kind of gambling venue called a "wolf trap" (Asbury, 1938), anyone could open up a game as the dealer and set the stakes according to the size of his or her bankroll. The house provided the equipment and chips and the dealer provided the bankroll. However, at the same time, casinos in the modern sense of the word also existed at which faro was dealt by professional card dealers.

The game makes its appearance in classic works of art and literature. For example, in Tolstoy's novel *War and Peace*, Dolokhov uses a brace (rigged) faro game to cheat Nicholas into a 43,000 rouble debt with which he hopes to manipulate Nicholas into giving up Sonya. In Tchaikovsky's opera *The Queen of Spades*, the main character is obsessed with finding the secret magic sequence that is guaranteed to win the last turn of the game. Faro also figures prominently in gambling stories of the Old West era. Doc Holliday, for example, was "an itinerant Faro dealer, toting the table apparatus with him wherever he travelled" (Briggs, 2002). It is said that Doc Holliday's principal income for most of his adult life was from dealing and playing faro (Howard, 2004). The game was also the inspiration for the name of the small mining town of Faro in the Yukon Territory of Canada.

Despite this illustrious history, in modern times even references to the game of faro have all but disappeared. For example, books, western films, and serials of the 1940s through the spaghetti westerns and popular western TV shows of the 1970s all disregarded faro in favour of poker (Howard, 2004). Today, it is essentially an extinct game of chance. It is not even mentioned in the current edition of *Hoyle's Rules of Games* (Morehead & Mott-Smith, 2001) nor in any other contemporary "how-to-gamble" book that we have investigated. Even by 1938, Asbury doubted if there were a dozen faro banks in operation in the United States. The game died in the United States during the early part of the 20th century as the temperance movements achieved increasing political power and eventually culminated in the Volstead Act. However, bans on faro and other games began as early as 1902 in New York (Asbury, 1938). Arizona banned the game in 1907 (Howard, 2004). By 1920, gambling had pretty much been outlawed across the nation. Nevertheless, even after the close of the prohibition era, faro's reputation as a fleecing operation for the unwary lingered and this perhaps was what prevented any revival

in customer interest in the game. The fate of faro was not unique. A game called bunco also disappeared around the same time from gambling venues, leaving behind only its name (as in the Bunco Squad) as a lasting reminder of its reputation. In addition, it is likely that the belief that an honest faro game is not profitable also prevents modern casinos from offering the game. About the only reminders that can be seen today of this once preeminent game are on the Internet. One Web site where faro can be played (for entertainment only) is "Wichita Faro" at http://www.gleeson.us/faro (Gleeson, 2004)). The game is also revived or relived at Old West oriented events for nostalgic purposes (see Howard, 2004; http://www.bcvc.net/faro/images.htm). It is not currently offered by any commercial casino that we know of.

The roots of faro

The roots of faro can be traced back to a 15th-century Italian game called "Basset" (Nelson, 2004). Asbury (1938) speculates that its roots go back even further to the game of "Landsquenet" played by Teutonic foot soldiers in the 1400s. It pretty much attained its modern form at the court of King Louis XIV in France (Nelson, 2004; Asbury, 1938; USPC, 2004); however, additional rules continued to evolve throughout the 19th century (Fox, 1882). Legend has it that it received its French name, "pharaoh," because an Egyptian king's face appeared on the backs of the cards (Asbury, 1938). Its English name, "faro," was derived from a misspelling of the word.

Faro was also known as "Bucking the Tiger." According to Asbury (1938), this was because during the 1830s a faro playing kit was often carried in a mahogany box with a Royal Bengal Tiger painted on the cover. Players adopted the tiger as the presiding deity of the game. The name also fits because of the fast pace of the game, the large stakes played, and the devastating losses suffered by some players (and dealers).

The rules for bucking the tiger

Faro was a fairly simple game of cards. Its rules of play had elements of roulette, craps, and baccarat. Like roulette, it used a betting board (called a "layout") where a player would place bets on which number would come up next. The punter could bet on a single number or a group of numbers. All cards were dealt in an invariant sequence of two cards: a loser card followed by a winner card. Each sequence of two dealt cards was called a "turn." A losing turn occurred if a card matching the case (2, 3, A, etc.) that the player had bet on was turned over first. A winning outcome for the player occurred if a card matching the case (2, 3, A, etc.) that the player had bet on was turned over second. If both cards were

the same case (e.g., 2 and 2) as the card the player had bet on, the player lost half his or her bet.

The cards were dealt from a box that is somewhat like the shoe used in baccarat and blackjack, however the cards were face up and visible through a window in the top of the box.. As in craps, a bet was not always resolved on each turn, but could stay on the betting board for several turns until that number came up as either a winner or a loser. Faro was a banked game. As in modern blackjack, a dealer set up the game, dealt the cards, collected the lost bets, and paid off all winning bets. It is one of the oldest banked games. Unlike in blackjack, the player did not try to beat the dealer's hand. Instead, the player bet that a specific number would come up as a winning number before it came up a loser.

The bets were placed on a betting board or "snap" that was somewhat like the betting board for roulette (see Figures 1 and 2). The snap sometimes had folding legs, hence the name "snap." In its most basic form, the faro table was a long rectangle covered in green felt. Glued on top of the felt was a layout of a suit of cards (usually spades) that was arranged in two rows of evenly spaced cards. These cards were then lacquered to protect them from damage during the brisk game play. The A through 6 occupied the row nearest the dealer's side of the table, and the 8 through K were in the row nearest to the players' side of the table. The 7 was on the far end of the rows, midway between the two rows of cards. Figure 1 illustrates the basic layout of the betting board as seen from the player's perspective. Figure 2 illustrates what a faro table might have looked like as seen from the dealer's perspective.

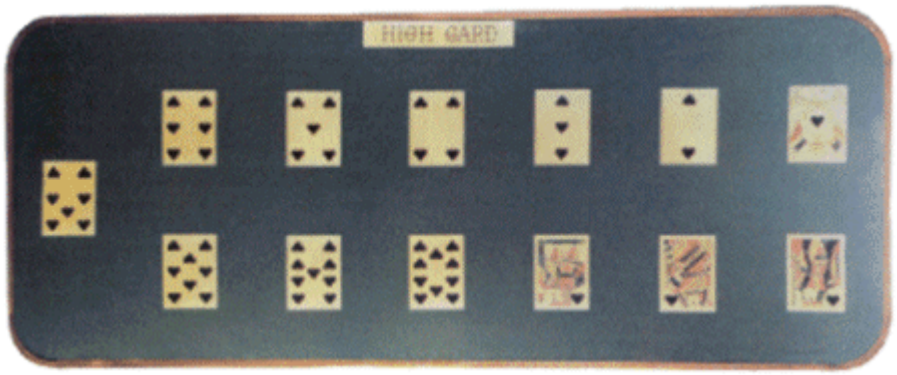

Figure 1
A faro betting board or snap as seen from the player's perspective

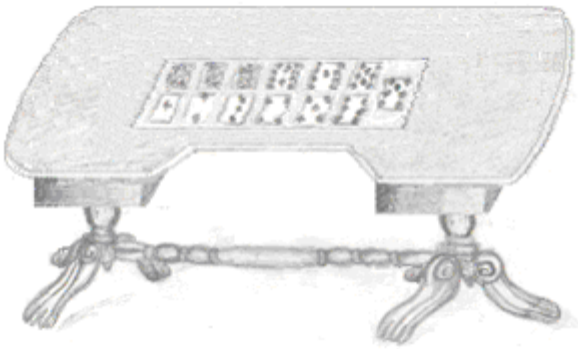

Figure 2
A faro table as seen from the dealer's perspective

Players placed bets on the betting board on what cards would be drawn as winners or losers. Bets on a single number were called flat bets. As with roulette, players could also bet on a group of cards by placing a bet between two or four numbers. A bet placed in the middle of the square made by the A, 2, K, and Q was a bet on the Grand Square. The J, 10, 3, and 4 formed the Jack Square. Numerous other compound bets were possible.

The dealer often worked with two assistants: the lookout and the case-keeper. The lookout paid off and collected all the bets and kept a watchful eye on the players. The case-keeper (also called the "coffin driver") usually sat across from the dealer. He or she kept track of or counted the cards that had been dealt using a device called a case counter or cue box that was similar to an abacus or the score counter used in pool (see Figure 3). The cards were counted so that people would be able to call the turn—bet on the exact order of the last three cards to be dealt. In addition, players would often make larger bets when only a single card of a particular case was left in the deck (see below under "Game of skill or chance?"). Case keeping also made it harder for the dealer to cheat the player. It was customary to tip the case-keeper because accurate case keeping was an advantage to the player, not the dealer (Howard, 2004). The case-keeper was sometimes one of the players rather than an employee of the house. Players also sometimes kept tabs on the game by recording the cards that had been dealt on notepads or special forms designed for that purpose.

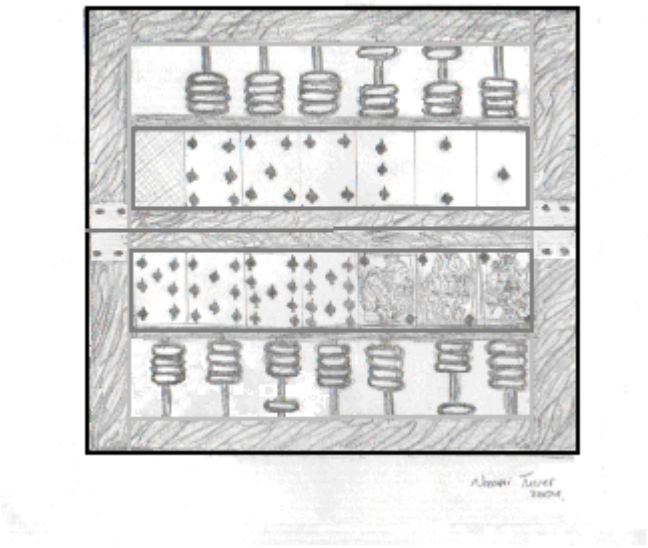

Figure 3
A case counter

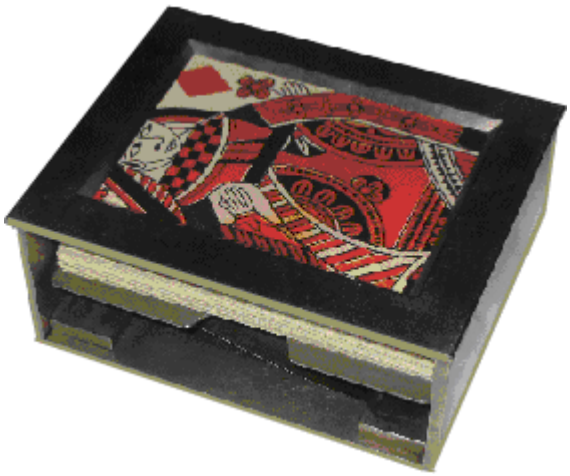

Figure 4
A faro dealing box

The game used a standard 52-card deck with four suits; however, the suits were of no relevance in the game. The dealer would shuffle the cards and place the deck on the table face down. Beginning in the 1820s, the cards were placed face up in a distinctive dealing box (see Figure 4), similar in function to the "dealing shoe" used in modern blackjack. However, unlike the blackjack shoe, it was spring loaded and had an open top and the cards were placed in it in a squared stack, face up. The first card in the deck was called the "soda card" and was a dead card, i.e., neither a winner nor a loser. This is similar to the way the first card in a blackjack shoe or poker deck is "burned."

As in roulette, the check or chip values were generally set by the player at the time of purchase and each player had a unique chip color or design to set their chips apart from the others. If it was a house game, even the dealer may not have been aware of the values being won or lost. The relevance of that becomes apparent when people are playing large stacks of chips. One player's tower of chips may be worth less than one chip of the next player.

Faro shares many features with modern games of chance, but the 13-card layout, case counter, copper tokens, and face-up dealing box are all distinctive items that were only used in faro. While other games may have layouts, shoes, tokens, and counting devices, none are quite like those employed in faro. However, the most distinctive feature of the game was the game play. In a typical lottery and in most other games of chance, winning numbers are drawn. All other numbers lose. But in faro, on each turn, only one winning card and one losing card were drawn. Bets on all other numbers were neither winners nor losers.

Game play

After the bets were placed and the soda card was removed, the first turn began. The second card was revealed and was counted toward the bank; that is, any bets placed on that specific card rank/case were lost to the house. The next card to come up was the "winner" card. Any bet placed on this card won even money (1:1). That means that a person placing a bet of $1 won $1 (and got the original bet back as well). At the time, to make the payout seem more appealing, this was often referred to as "two-for-one" rather than "one-to-one odds."

Each pair of cards (loser and winner) was called a "turn." If the winner and loser cards were the same in any particular turn, the dealer took half the bet from anyone that had bet on that specific card rank, any high-card bet, or any other compound bet that included that card. If a player bet on a case (card rank) that did not come up as a winner or a loser, then the bet normally remained on the board for the next turn. Between turns, players were in general allowed to take back, change, or add to any unresolved bets. However, according to Fox (1882), at some periods in the past dealers required that all bets remain on the board until resolved.

Compound bets

A player could also bet on a combination of cards (also know as a split). A player that bet on the Grand Square would win if an A, 2, K, or Q came up as a winner card, lose if any of those cards came up as a loser. If both the winner and the loser card were in the Grand Square, but were not the same, the bet would be treated as

a push (neither a win nor a loss). However, as with single card bets, if both the winner and loser were the same, the punter would lose half of their bet A bet on the Grand Square or any other compound bet would also pay off at 1:1 if any of the cards in the Grand Square came up as a winner. A compound bet of $1 on the Grand Square was exactly the same as placing four separate $1 bets on the A, K, Q, and 2. This is quite different from roulette, where a compound bet (e.g., a corner bet on four numbers) pays less than a bet on a single number. The negative aspect of compound bets was the increased chance of a split.

Coppering a bet

Beginning in 1853, a player could also bet that a card would come up as a loser (on the first draw of each turn). This is somewhat like making a "don't pass" bet in the modern game of craps. In order to bet that a card would lose, the punters placed a penny (later replaced with a hexagonal copper token) on top of the stakes of betting chips. "Coppering" a bet essentially reversed the bet, allowing it to win on the first (losing) draw and lose on the second (winning) draw. This worked for flat bets, compound bets, and any other wagers allowed on the layout (Howard, 2004). According to Fox (1882), when coppered bets were first introduced, many dealers did not like them because they believed that the reversed bet somehow shifted the odds in the player's favour.

High card

In most games after the 1840s, there was a "high-card" bar across the top of the layout (nearest the dealer). Players who placed wagers on the high-card bar were betting that the winning card (the second card drawn) would be higher than the losing card (the first card drawn). High cards were ranked from lowest (A) to highest (K). This bet could also be coppered to reverse it and bet on the losing card (first draw) being higher than the winning card (second draw). Winning punters were paid off 1:1. This was a popular play, because punters betting on (for or against) the high-card bar got action each turn, while punters betting on single cards or splits might not have gotten any action on their bets for several turns. In later years, some dealers also offered bets on even/odd, rows, and other unusual wagers, each having a specific place on the dealer's layout (Howard, 2004). Thorp (1976) notes that in some variations this particular bet had no house edge.

Betting the turn

When the deck was down to the last three cards, the dealer offered the players an opportunity to "call the turn." This meant betting on the exact order of the last three cards in the deck. Calling the turn

was apparently the most popular bet in the game (Briggs, 2002) and a source of great excitement, often drawing a crowd in the establishment (Howard, 2004). The action in Tchaikovsky's opera *The Queen of Spades* centres around the main character's attempt to find a magic sequence to guarantee winning on the last turn. Its popularity was likely due to the payoff odds of 4:1 and perhaps an illusion of control or skill. Interestingly, the last turn has a much larger house advantage than the other bets.

Fast-paced gaming action

Faro was probably the fastest table game ever devised. As noted above, this was mainly due to its simplicity: unlike blackjack or baccarat, where a minimum of four cards had to be played, in faro only two cards had to be shown for each turn. There were no complicated rules for drawing additional cards as in baccarat; no decisions to hit, stand, or split by the individual player as in blackjack; no waiting for a ball to roll around a wheel as in roulette; and no need to keep track of a player's points as in craps. Craps is also a very fast game, but in addition to the player having to shake, roll, and recover the dice, the dealer often has stop to check over the dice to make sure the player is not substituting loaded dice into the game. In faro, only the dealer handled the cards. With just two cards per turn and many bets not being resolved on each turn, a player making only a single bet might have had to wait several turns before winning. However, the players could have had several different bets on the board at the same time, as is often the case in craps today. The speed of the game was also greatly enhanced by having separate people working as lookout to collect and pay off the bets and case-keeper to keep track of the cards dealt. Based on his experience dealing faro in Old West reenactments, Howard (2004) estimates that, depending on the number of players, faro can be played at a rate of two turns per minute, or two to three times faster than blackjack or roulette. It is likely that the game was even faster when played with experienced gamblers (rather than with tourists, as is currently the case in Old West reenactments). The potential speed of the game is another reason for the name "Bucking the Tiger."

Dead money

In poker, dead money refers to money contributed to a pot by players who are no longer actively involved in the hand because they have folded. In tournaments, it has also come to be used as a term for players who have no chance of winning. In faro, "dead money" would be a good term to describe bets placed on the last card in the deck. The last card was also known as "hoc" and bets made on the last card were said to be "in hoc." One rule variation was that the dealer would claim all money bet on the last or hoc card. This was known as "hockelty" (Fox, 1882). Thus, bets on the

dead card counted for the house (Asbury, 1938, p. 8; Fox, 1882). However, depending on the dealer's preferences or the house's rules, sometimes bets on the dead card could also be grabbed by the first person who noticed that the bet was dead (Briggs, 2002; Carson, 2001). If dead bets could be grabbed by the first player to notice that the bet was dead, this was likely a great source of conflict between faro players. When one considers the number of handheld firearms that figure prominently in stories of the Old West, "dead money" may be a particularly apt term.

Rule variations

Faro was a game played around the world for more than two centuries, and during that time there were various changes in the rules and the types of bets allowed (Howard, 2004). According to Fox (1882), many of these rule changes were a reaction to players or dealers who cheated. For example, the cards were originally held in the hand and dealt from a face-down deck, but with a handheld deck, it was possible to manipulate the game by dealing from the bottom of the deck. The introduction of dealing boxes eliminated this cheat. However, when faro dealing boxes were first introduced, players were suspicious because the original design concealed the cards. It was not until an open-faced, spring-loaded dealing box was designed in 1825 that the box was accepted by players. That box became a standard piece of equipment for the game (see Figure 4). Similarly, the cue boxes that were used to count the cards were introduced in part to prevent the dealer from cheating by drawing two cards at the same time from the box or by stuffing the box with extra cards to increase the chance of a tie. The cue box did not eliminate cheating, but it made cheating more difficult. Coppering a bet, dealing boxes, calling the last turn, hockelty, and allowing bets to be changed or removed are just some of the rule changes that occurred over time.

House edge

Asbury (1938) cites several sources that claim that faro has a small or even nonexistent house edge. As further evidence, he cites the fact that the casinos in Monte Carlo have never offered a game of faro. Other sources that we have found on the Web seem to have a mixed view of the house edge. Estimates range from "very low" to about 2%. Several editorial columns on various gambling Web sites note that it's a pity that the game is no longer available because it had such a small house advantage. At the same time, the lasting reputation of the game is that it was a cheater's game and that the odds were skewed heavily in favour of the house as a result. Asbury (1938) essentially says the game is only profitable if the dealer cheated. However, many people who have heard of the game today believe that players' odds in even a straight faro game

were very poor when compared to contemporary casino games (Howard, 2004).

According to Thorp (1976), the 1962 *Collier's Encyclopedia* lists the edge as at least 4%, but mathematicians believe it to be nearer to 15%. Other sources (as cited by Thorp) provide a wide range of approximations to the edge in faro. Thorp, a well-known mathematician, has also added to the discussion and presents a set of mathematical proofs for various estimates. His analysis produced several different estimates for computing the edge. Thorp's paper is filled with mathematical formulas and is therefore somewhat hard to follow. Our approach was to use computer simulations to explore the house edge in this game.

House edge simulation

In the following section, we investigate the mathematics behind an honest game of faro to see how it compares with modern games of chance. According to Asbury (1938), determining the house edge is very difficult: "Many mathematicians have set their brains to work to discover the exact percentage on Faro, but in every instance have ignominiously failed" (p. 11).

With modern computers, it should be easy to program a simulation that can precisely determine the house edge of any particular game, given a particular set of assumptions. During regular play, the only time the casino had an advantage in faro was on a split—when two identical cards were drawn on a turn; then, the house took back half the bet. For the regular bets on the cards, the house edge came entirely from splits. Once three cards from a particular case were drawn, the player could wager bets without any house edge whatsoever. On the first turn, the chance of a split is 3/50 or 6%. According to simulations, over the course of the deck, the chance of a split is about 5.9%; however, the house only had an advantage if the player bet on the card that split. If a player suffered from all splits, then the player lost money at a rate of 2.94% (see Epstein as cited by Thorp, 1976), but this house edge only applied if the player bet on every card on the board (e.g., a high-card or odd/even bet). This is the theoretical upper limit to the house edge of faro on rank cards. The theoretical lower limit is a house edge of zero that could be obtained if the player only placed a bet on a case card (only one card is left of a particular rank).

All other estimates have to make assumptions about how the player plays. As is shown below, Thorp's (1976) estimates based on one set of assumptions derive one set of house edge estimates, while a different set of assumptions derives a different set of house edge estimates.

Note that we treated all 25 turns in the same manner, but according to some sources flat bets might not normally have been placed on the last turn. In fact if dead bets could have been claimed by the dealer (hockelty) or any other player, it would have been very foolish to make any flat bet on the last turn. In this simulation, we have computed the cost of flat bets and hockelty separately.

We conducted a number of simulations of the game to attempt to determine the house edge. We found that the number of simulations needed was very large because the volatility of the game made it difficult to measure the house edge accurately. As a result, we ran a simulation of 1 million decks and 25 million turns of the cards. This number, however, exceeded the repeat cycle of the random number generator (RNG) (16.7 million) we were using to conduct our simulations, so we had to construct a separate RNG (based on Wichman & Hill, 1982), which we used to randomly sample from the computer's RNG. Note that we did not use the Wichman and Hill generator itself. We used it to sample from the computer's RNG. Depending on the value generated by the Wichman and Hill generator, the computer would skip between zero and five RNG numbers. The computer would thus generate a different set of numbers each time it passed through the repeat cycle of the computer's RNG. An analysis of the net result found no repeats, runs, biases, subcycles, or other deviations from a random distribution after going through several billion numbers.

Results

Randomly selected flat bets

For flat bets, the computer was programmed to search for a card that was still alive (at least one card left in the deck) but not to preferentially look for case cards (only one card left in the deck—no chance of a split). A bet on a single number is often called a flat bet. Each deck consists of 25 turns, so in total our simulation played out 25 million turns of the cards. A bet remained on the board an average of 4.4 turns before being resolved as a win, a loss, or a split. The simulated player made a total of 5,673,873 resolved bets. The simulated player's bets were resolved by a split 3.8% of the time. On each split the simulated player lost half of its bet. Betting at a rate of $1 per turn, the player lost a total of $109,964. Table 1 lists our various estimates of the player's expectation in a game of faro, including random betting, selecting the soda card, and strategic betting.

The house edge percentage on flat bets, however, depends on how it is measured. With blackjack, slot machines, and lotteries, a bet in which you neither win nor lose (a push, breaking even, and winning a free ticket, respectively) is counted in the payback to determine the total house edge. In craps, however, a bet is not

counted until it is resolved as either a win or a loss. The problem with the house edge in faro is that a bet will stay unresolved on the board for an average of 4.4 turns until it is resolved as a win, a loss, or a split. The house edge depends on how we treat the unresolved bets. If we use blackjack as our model and treat an unresolved bet as a push, then the house edge in faro is equal to $109,964 divided by the total number of turns (25 million) or 0.44%. This is indeed a small house edge. However, if we use craps as our model and only count the payback on a bet after it is resolved one way or the other (win, loss, or split), then the house edge equals $109,964 divided by 5,673,873 resolved bets or 1.94%. Since an unresolved bet can neither win nor lose, it seems that craps is the more appropriate model for the game.

The edge we've computed, 1.94%, is larger than the edge for passline bets in craps (1.4%), banker or player bets in baccarat (1.17% and 1.37%, respectively), and even-money bets on a European roulette wheel (1.3%). It is also higher than blackjack and some video poker games when played with an optimal strategy. However, this estimate of the house edge in faro is smaller than that realized in Caribbean stud poker, American roulette, and most slot machines (for more information on the house edge of various casino games, see Wong & Spector, 1996; Cardoza, 1997). Thus, faro, on average, does not offer better odds than other games. However, a unique feature of faro is that there are circumstances in which a gambler may place bets without any house edge whatsoever (see "Game of skill or chance?" section below).

Fixed bets: One bet per deck

Thorp (1976) provides a number of different estimates for the house edge based on different assumptions: –1.5% for the soda card, –2.02% for an unsoda card, and –1.98% for a randomly selected card. These estimates are based on picking a card to bet on and then playing it only until the bet is resolved. Our first simulation had the player randomly placing a bet for every turn, and the result equalled the situation of betting against the soda card. Our simulation of faro based on Thorp's assumptions came very close to his calculations.

Fixed bets for the entire deck

We also simulated what would happen if the player continued to bet on the soda or unsoda cards until the end of the deck. Much to our surprise, we found that the player is in fact better off selecting a card and sticking to it for the entire deck than randomly changing bets after each play. Continuing to bet on the soda resulted in a player expectation of –1.006%, while betting on any other fixed card resulted in a player expectation of –1.56%. (Note that these

figures roughly match Thorp's (1976) calculations on page 455 for fixed bets for *m* = 3 and *m* = 4, respectively.) This analysis also revealed that playing the soda card to the end of the deck results in a lower house edge (1.0%) than cashing in after one resolved bet (1.5%) and a much lower edge than placing random bets (1.9%).

Optimal bets

Modelling an optimal strategy in a game with a negative player expectation is a little absurd because in truth the optimal strategy is not to play at all. Nonetheless, we also modelled in the result of strategically selecting cards with the lowest number of cards remaining in the deck, but maintaining the same size bet. In this case, the house edge was 0.195%. The house edge for optimal bets is lower than in any game currently available in a casino. A lower percentage could be achieved if the players increased their bets after case cards became available (one card of that rank left in the deck). Using a variable bet strategy, Thorp (1976) argued that the lowest bound possible for the edge in faro games is less than 0.0006%. However, it should be noted that faro dealers were aware of this strategy and countered it with a lower maximum bet on case cards than on doubles (e.g., Asbury, 1938, p. 447). For example, a player was allowed to bet $10 on doubles (two cards left in the deck) but only $5 on singles (one card left in the deck).

Table 1
Estimates for the house edge in faro based on playing through the entire deck of cards (25 turns with no hockelty)

	Net loss	Resolved bets	House edge
1. Random flat bets on live cards	–109964	5673873	–1.9382
2. One bet per deck	—	—	—
– Soda bets	–15066	1000000	–1.5066
– Unsoda bets (not on the soda card)	–20024.5	1000000	–2.0025
– Bet on randomly selected card	–19955.5	1000000	–1.9956
3. Bets on every turn	—	—	—
– Bet on soda card left on until all cards are drawn	–29002	2883910	–1.0058
– Bet on unsoda until all cards drawn	–59683	3805473	–1.5687
– Fixed flat bet on any card until all cards drawn	–56254	3735210	–1.5064
– Bet on rank with fewest remaining cards	–7048.5	3617485	–0.1951

Compound bets

As stated above, as in roulette, the player has the option of betting on two cards at a time or a square of four cards (e.g., the Grand Square—K, Q, A, and 2). Howard (2004) calls these "split bets," but we will use the term "compound bets" to avoid confusion with the situation when both the winner and the loser card are the same case, which is referred to as a split. As with any other game, a bet on a combination of cards increases the frequency of bet resolution (wins and losses). A win on any card within a compound bet pays off the full amount (1:1). However, the most interesting aspect of compound bets in faro is that they make the chance of a split more likely. For example, suppose a player places a bet on the Grand Square. The player wins even money if the K, Q, A, or 2 comes up as a winner; loses if K, Q, A, or 2 comes up as a loser; and splits if any of these four ranks splits. In our simulation, compound bets were only placed if all of the numbers were live (at least one card left for each member of the compound).

The results of the simulations with compound bets are shown in Table 2. After 1 million decks of cards, the simulated player betting on the Grand Square had a net loss of $124,141.50 and 7,757,699 resolved bets, which translated into a house edge of 1.6%. Betting on an entire row produced a house edge of 1.79%. A fixed bet on the Grand Square had a slightly higher house edge (1.6%) than a fixed bet on a randomly selected card (1.506%), but the actual dollar losses during the simulation ($124,141.50) were more than twice as great as the fixed bet on a single number ($56,254). A bet on the Grand Square resulted in a greater loss than even a randomly selected card ($109,964). This is because the Grand Square bet is resolved more often and the multiple cards mean that the chance of a split is greater.

We also computed the effect of randomly varying which square (e.g., A-K-Q-2, Q-J-2-3, J-10-2-3, etc.) or which row (A-2-3-4-5-6 or 8-9-10-J-Q-K) was selected. Varied compound bets led to a slightly lower house edge than fixed compound bets (e.g., 1.57 vs. 1.60) but a larger actual loss (e.g., –$143,099 vs. –$124,141). What is interesting here is that randomly selecting compound bets had the opposite effect of randomly selecting flat bets. This is because the search algorithm for random compound bets placed bets on compound bets that were still live (at least one card was left for each rank). This algorithm resulted in a greater number of compound bets being placed for combinations that included case cards compared to fixed compound bets. The larger actual losses, however, are also due to the fact that more bets were placed.

Another type of compound bet, the high-card bet, had the virtue of being resolved on every turn. According to our simulations, the high-card bet had a house edge of 2.95%. Note that, according to

Thorp (1976), the high-card bet sometimes was available with no house edge (splits were treated as a push).

Calling the turn

The actual probability of correctly calling the exact order of the last three cards is 1 in 6 because there are six possible combinations with the three cards. However, the payback for a win was four for each unit bet (plus the player gets his or her bet back), meaning that on average for every six bets made, the player would get back five units, for a payback percentage of 5/6 or 83.3% or a house edge of 16.66%. However, if two of the last three cards were the same case, quaintly called a "cat hop," the payback for correctly calling the last turn would only be 2:1. Since there are only three possible combinations of three cards when two are the same, a payout of 2:1 has no house edge. The net result when we factor in the occasional cat hop is that a bet on the last turn netted the dealer a 13.9% house edge. If all three cards were the same rank, it was called a "case" and no bets were taken. Some variations of the game rules allowed the players to bet on which of the last three cards was the odd colour (e.g., with two reds and one black, should that black card come up first, second or third). This bet was identical to the cat hop and had no house edge, however in our simulation, "calling the turn" was skipped if all three were the same.. A player who made random flat bets throughout the game and then called the turn would be playing up against a net house edge of 3.7% ([–109,964 + (–138,831)]/(5,673,873 + 997,566)). Using this same figure for the turn, we can estimate that a person pursuing an optimal strategy, who then also bets the turn, would have a net house edge of 1.75% ([–109,964 + (–7048.5)]/ (5,673,873 + 997,566)).

Table 2
Estimates for the house edge for compound bets in faro based on playing through the entire deck of cards (25 turns with no hockelty)

	Net loss	Resolved bets	House edge
Grand Square (fix 4 cards)	–124141	7757699	–1.600
Fixed row bet (6 numbers)	–173564	9680315	–1.793
Random square bet (4 cards)	–143099	9114807	–1.570
Random row bet (6 numbers)	–195423	10982080	–1.779
High card (13 numbers)	–738370	25000000	–2.954
Last call	–138831	997566	–13.917

Summary: The house edge for various bets

From this analysis, the house edge in faro clearly depends on how the game is played and the rules that are applied. Assuming that the player wants to place a bet on each turn of the cards until the end of the deck, the relative values of different betting strategies are as follows: The best bet is always to bet the rank with the fewest remaining cards in the deck. After that, the next best bet is a bet on the soda card until the card is dead. Third best is to randomly select a number at the beginning of the game and play that number until it is dead. A close fourth place goes to betting on a card other than the soda and keeping to it until the end of the game. Fifth place is one of the compound bets such as the King Square or a row bet. Sixth place is to randomly select a card on each turn. Seventh place is the high-card bet. Finally, the worst bet in a fair game of faro is to call the turn.

Dead money

In our simulation, a total of $277,663 in random flat bets was left on a dead card during the last turn. If dead bets went to the dealer, then the house edge on a flat bet placed when only three cards remained in the deck would be a house edge of approximately 31.3% according to our simulation. However, the true value of a dead bet is difficult to determine because it depends on how often people placed or left flat bets on single numbers during the last turn. It also depends on the rules of a particular game. A flat bet on the last turn has nearly a one in three chance of being in hoc (a bet on the second to last turn has a one in five chance of being in hoc). If the cost of dead bets is added to the cost of random flat bets, a person making random bets on a table where the dealer collected all dead bets would in fact be playing against an estimated house edge of 6.2% ([–109,964 + (–295949)]/(5,673,873 + 887,848)). If the dealer claims hockelty and does not allow the removal of unresolved bets, then the player's best option is to stop betting several turns before the end of the deck.

Ignoring dead bets or the last call, the house edge in the game of faro has an upper limit of 2.95% (high-card bet) and a lower limit of 0% (zero-edge bets). But the exact value depends on the assumptions one makes. Random bets yield a relatively high house edge of 1.9%, a fixed bet on a randomly selected card yields a lower house edge of 1.5%, and a fixed bet on the soda yields an edge of only 1.06%. The drop in edge from one situation to another is related to the reduced chance of a split when betting on a card that has already come up. When the computer randomly changed cards after a resolved bet, it increased its exposure to splits. Compound bets similarly increase the player's chance of a split compared to a single flat bet. The game can be played without any house edge at all. However, assuming that gamblers want to play

continuously (and not wait for a case card to occur), the best strategy—selecting the rank with the fewest remaining cards—yields a very small house edge of 0.195%. However, note that the amount of action (resolved bets) is highest for high-card bets and random bets and is lowest for a fixed bet on the soda card and optimal bets. Excluding last turn and Thorp's (1976) one-bet estimates (which are based on only one resolved bet per deck), the relationship between resolved bets and house edge is $r(12) = .80$, $p < .01$. A player looking for a lot of action may not select the best strategy.

The confusion over the house edge in faro likely has to do with (a) how the house edge is computed (all bets or only resolved bets), (b) different assumptions about betting (e.g., sticking to one card or changing cards), (c) the strategy of the player, (d) the type of bet placed (e.g., flat bets, last turn, high card), (e) rule variations related to dead money and hockelty, and (f) the number of bets considered (first bet or on bets throughout the deck). There is no single house edge for faro because the edge depends on how the game is played.

Game of skill or chance?

Faro was a game of pure chance. However, the player was actively involved in making decisions about which card would come up as a winner or a loser and the order of the cards for calling the turn. It is likely that the design of the game of faro created a strong illusion of skill. Tchaikovsky's opera *The Queen of Spades* is about a man who believes there is a secret skill to calling the turn.

Although there is no real skill involved in playing faro, there are two circumstances in which a player can bet without any house edge at all. One is the cat hop, when two of the last three cards are the same; the other occurs when three cards of a particular case have been turned, so that a split is no longer possible and a straight (flat) bet is placed on that card. If the game is played strategically, an astute player can eliminate any house edge by only playing under these circumstances but cannot achieve a long-term win in the game. Such strategic play, however, does not qualify as skill because there is no real learning process of gradual improvement in ability. To play optimally, a person simply has to place bets only on case cards and cat hops.

The modern game of craps also has one type of bet that has no edge: the free-odds bet. However, a free-odds bet can only be placed after an initial pass or come bet point has been set. Unlike the free-odds bet, a bet on a case card or a cat hop did not require first making another bet. The only other means of playing without a house edge in a casino is to play in a game with a considerable

degree of skill (e.g., blackjack, poker).

Cheating

Because of faro's simplicity, it was quite easy to cheat at the game. Simply drawing the second card or the bottom card instead of the first could shift the game strongly in the dealer's favour. Because the cards never left the hands of the dealer, the dealer most often did the cheating. According to Asbury (1938) and every other source we have looked at, faro games were most often run dishonestly. Asbury outlines numerous ways in which games of chance were rigged to provide the "professional gambler" with a certain edge over the "suckers" that played. Dealers often roughed up the back of a card with sandpaper or stripped off the edges of certain cards to help them tell the cards apart while they were being shuffled or when they were in the dealer's box. By using these techniques they could control which cards were winners and which were losers. Various other methods were devised to ensure that the house would win. Many dealing boxes were rigged so that the dealer could tell what cards were coming up. Others had special levers or plates that made it possible for the dealer to draw two cards at a time, thereby shifting the sequence of a stacked deck in a manner most advantageous to the dealer. Collectors of antique gambling paraphernalia note that dishonest dealing boxes were quite common (Howard, personal communication).

In some cases, according to Asbury (1938), first-class casinos ran "square" (honest) games unless a large bet was made or the player had been excessively lucky, in which case the dealer would be instructed to "protect the house." In other "skinning houses" or "brace houses," the casinos pulled out all the stops to ensure that they took the players' money as quickly and efficiently as possible.

The amazing thing is that the game remained popular long after it had become widely known as a "cheater's paradise" (Briggs, 2002). He explains the tolerance of cheating as follows:

> Partly it's the simple psychology of communal betting. You get the same atmosphere at a Craps table, where people throwing money down on a table, sometimes betting on the same numbers together, can produce a sort of temporary group madness. It's also a *fast* game. You don't really have time to grieve over your losses. And as time went on, the casinos added a few proposition bets to the table as well—you could bet odd/even, for example, or you could bet that the next card would be higher or lower than a certain number. The cumulative effect was to make it a very lively, very noisy, very social game. The Blackjack table is a

snoozefest by comparison.

The intense social environment of faro is illustrated in Figure 5. Figure 6 shows a modern faro game offered at an Old West reenactment (see also http://www.bcvc.net/faro/images.htm). As the photos in Figures 5 and 6 demonstrate, faro had the power to rivet the attention of all onlookers as the next turn's outcome was anticipated.

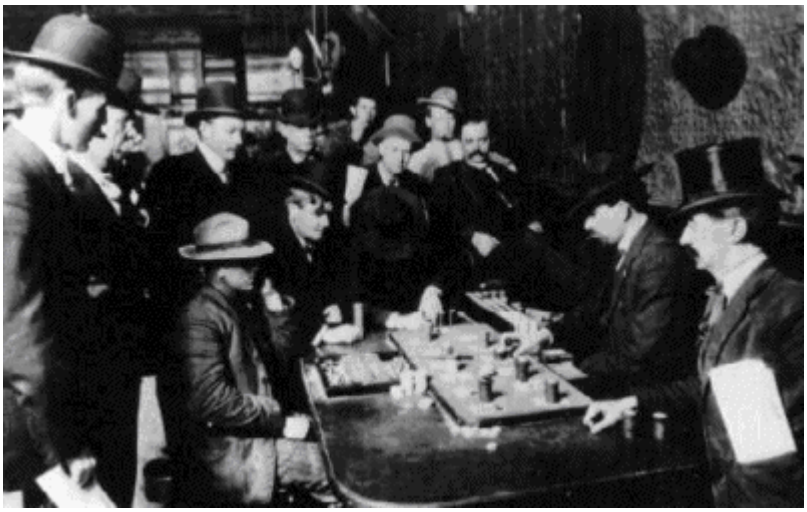

Figure 5
The social environment of faro: "The Faro Game"
By Camillus S. Fly, Orient Saloon, Bisbee, Arizona, circa 1900

Figure 6
A modern game of faro at an Old West reenactment with the second author as dealer

The players were often not innocent either. Some players used horsehair or silk thread tied to a chip at the bottom of a stack so

that after a card had been turned they could subtly move their bet onto the winning number. This tactic was also used with copper tokens to remove the token from a bet if it did not lose on the first draw. The lookout's main job was to keep an eye on the players. It is likely that many of the players who persisted in trying to beat the tiger were trying to outsmart or outcheat the dealer.

Another reason for the game's continued popularity in spite of the cheating was that dealers and gambling establishments incorporated a number of measures into the game to give the illusion of propriety. By all appearances, faro must have been a relatively honest game. The open-faced dealing box, case-keeper, coppered bets, and other rules (see Fox, 1882) restricted the amount of cheating by the dealer. Dealers and players, however, found ever-newer methods of cheating, but these methods provided only a relatively small added advantage compared to an honest game. For example, an extra card in a two-card dealing box (one that allows the dealer to draw two cards, thereby shifting the order of a stacked deck) provides the dealer with one or two turns in which he could make a score (Fox, 1882). In contrast, in poker, card mechanics could cheat by dealing themselves (or a confederate) good cards from the bottom of the deck every time they dealt, though smart ones would have strung along their marks to achieve a larger payoff (see Blackbridge, 2004; Twain, 2004). Similarly, a three-card monte or thimble rig thrower can cheat on every deal by plain sleight of hand (see Asbury, 1938, for further comments). The restrictive equipment and rules built into the game of faro likely helped sustain interest in the game by providing punters with some confidence in the security and veracity of the game.

However, it is important to note that the selling point of many of the first-class casinos during the last decade of the 19th century was their outward appearance of honesty and impeccable integrity. Canfield, who ran very popular and successful first-class casinos in New York during the 1890s, is well known for arguing that it is "unnecessary for a gambler who ran banking games to use crooked paraphernalia" (Asbury, 1938, p. 419) because the house advantage was sufficient to guarantee profit. This renewed emphasis on an honest game in the 1890s might have been an attempt to counter the growing negative view of gambling held by the general public. It was ultimately unsuccessful, and the antigambling movement, fuelled by corruption, scandals, and a rising temperance movement, grew in strength and eventually led to the widespread prohibition of gambling in the early 20th century.

Although the cheating in faro did not seem to affect the popularity of the game during the 19th century, the lasting reputation of the game is that it was a cheater's game and that the odds were skewed heavily in favour of the house. As we have illustrated in this

paper, however, the house edge compares well with many modern games of chance.

From the casino's point of view, however, the game might be seen as potentially unprofitable because it can be played with no house edge at all. Epstein (1976) attributes the game's demise to the small house edge if the game is played optimally. However, Canfield's casino was apparently very profitable (see Asbury, 1938), yet he is famous for claiming to run honest casinos. People were apparently aware of the lack of an edge on a case card because the casinos protected themselves by imposing a smaller betting limit on "singles." Perhaps the players were not playing in an optimal manner or perhaps the casinos were saved by gamblers ruin (if two people persistently play a game, the person with the smaller bankroll is most likely to lose in the long run; Weisstein, 2005).

Nonetheless, a simple rule change to require bets to remain on the board until resolved or converted into a call of the turn would guarantee a profit even if the players only made bets on case cards (e.g., a house edge of 1.75% per resolved bet was computed assuming an optimal strategy plus last turn).

What does faro teach us about modern gambling?

Faro was a popular game and appears to have been very addictive, based on historical accounts. How addictive the game was is impossible to measure. Fox (1882) estimated that there were more than 300,000 faro players in the United States at that time and that two thirds could be called regular players. However, Fox does not explain how he derived this estimate. Prevalence research on pathological gambling did not exist at the time, so we have no definite idea of the extent of problems related to faro. However, given that the game was at least in part responsible for antigambling riots during the 1830s, we can surmise that problems were quite common.

Despite its demise and loss of status as the gambler's game of choice, faro's lessons are strikingly contemporary and help us understand many of the phenomena associated with gambling today. In particular, there are interesting parallels between faro in the 19th century and EGMs of today (see Turner & Horbay, 2004, for a lengthy discussion of EGMs):

1. Speed is important. Faro could be played very quickly. With faro, the emotional roller coaster of winning and losing could be compressed into a single turn of the cards. The speed of the game likely contributed to its popularity and to the gambling problems associated with it. Speed has also been

implicated as a key feature of today's problems with EGMs.

2. The social aspect of the game did not protect people from problematic play but may have contributed to the problem. The electrified social environment surrounding a faro game may have served to blunt any cautious appreciation by players of their losses. EGMs are generally seen as nonsocial games and the lack of social context is believed to contribute to the problem. The lesson from faro is that a social context does not prevent problems.

3. Knowing the odds is not enough. Faro remained popular long *after* it became known as a cheater's paradise (Briggs, 2002). If faro continued to be popular in spite of the well-known and widespread cheating, how can we hope to combat problem gambling with information about the odds of a game? With faro, the challenge was to outsmart the dealer or keep him or her honest. Today, gamblers believe they can figure out how to beat the odds by playing a system or looking for machines that are due. This is not to say that the odds should not be made public, but that we should not expect too much from a full disclosure of the odds. What is needed perhaps is greater public access to information on the real meaning of a house edge as it applies to the players—that in the long term the player cannot beat the odds.

4. Our modern age is not the first age of widespread gambling. There was a time in America when a game of faro could be found in nearly every saloon in every town. Just after the American Civil War, Washington, DC, apparently had 150 gambling dens of various kinds (USPC, 2004), and, in 1855, the mining town of Columbia, California, boasted a population of over 15,000 with 40 saloons hosting 143 registered faro banks (Howard, 2004). Today, EGMs are approaching that same level of availability and now make up a large percentage of problematic gambling (Dorion & Nicki, 2001; Rush, Moxam, & Urbanoski, 2002; Smith & Wynne, 2004).

5. Deception in the form of cheating was apparently a common part of the faro game, but faro equipment and rules such as card boxes and coppered bets were designed to give the gambler some confidence in the veracity of the game. Today, EGMs do not cheat their customers per se, but features such as weighted virtual reels, larger numbers of winning symbols on the first two reels, multiple betting lines, and numerous small prizes are used to give the player the illusion that the odds are better than they really are (see Turner & Horbay, 2004, for a lengthy discussion). Faro equipment in part served the same purpose—to give the player an illusion that the game was more honest than it really was.

6. The changing availability of gambling from prohibition to wide open and back to prohibition holds a cautionary lesson for the gambling industry and anyone who depends on it for their livelihood. The gambling industry's existence has historically depended on the mood of the general public toward gambling. In the 1830s and again toward the end of the 19th century, both moral panic (Cohen, 2002; Turner, 2005) and outrage over gambling-related corruption resulted in a backlash that led to a ban on gambling. There are signs today of growing negative attitudes toward EGM gambling (e.g., Green, 2004; Shiflett, 2002; Pinkerton, 2003; Murse, 2004). Judging from the fate of faro, odds are that if the industry does not take steps to avoid problems, the cycle may turn once again to prohibition (see Rose, 1986, for comments). However, antigambling groups should take comfort in this historical lesson: casinos and even specific games of chance do not last forever.

7. Political corruption, problem gambling, and antigambling movements are not new phenomena. Similarly, the struggle between pro- and antigambling forces has been played out many times in the past. Today, the struggle is over slot machines, VLTs, and Internet gambling; 150 years ago, it was over the rapid turning of cards.

Faro was more than a mere card game; it was a social phenomenon, many of the features of which were to be repeated later in the 20th century. The prospect it held out of apparently quick and effortless winnings conferred a power to corrupt. The dealers, the gambling establishments, the players themselves, and the local authorities were not immune to its temptations. Corruption in the gambling industry (lotteries, casinos, etc.) triggered a backlash against gambling during the 1830s and again around the turn of the 20th century and resulted in widespread prohibition. Perhaps faro's essential lesson is that we need to carefully scrutinize any gambling phenomenon that begins to show these telltale characteristics.

References

Arnold, P. (1978).
The encyclopedia of gambling: The games, the odds, the techniques, the people and places, the myths and history. Glasgow: Collins Publishers.

Asbury, H. (1938).
Sucker's Progress: An informal history of gambling in America. New York: Thunder Mouth Press.

Blackbridge, J. (2004).

Frauds in playing and poker sharps. In J. Stravinsky (Ed.), Read 'em and weep: A bedside poker companion. New York: HarperCollins Publishers. (Reprinted from The Complete Poker Player, 1880.)

Briggs, J.B. (2002).
The ghosts of faro. The Vegas Guy. Retrieved January 20, 2006, from http://www.joebobbriggs.com/vegasguy/vg20021210.html

Cardoza, A. (1997).
How to win at gambling. New York: Cardoza Publishing.

Carson, B.C. (2001).
The soldier's respite. Retrieved January 20, 2006, from http://www.shasta.com/suesgoodco/respite/

Cohen, S. (2002).
Folk devils and moral panics (3rd ed.). London: Routledge.

Dorion, J.P., & Nicki, R.M. (2001).
Epidemiology of problem gambling in Prince Edward Island: A Canadian microcosm. *Canadian Journal of Psychiatry, 46*, 413–417.

Epstein, R. (1976).
Theory of gambling and statistical logic (Rev. ed.). New York: Academic Press.

Fox, R. (1882).
Faro exposed, the gambler and his prey. New York Police Gazette.

Gleeson, S. (2004).
Wichita Faro. Retrieved January 20, 2006, from http://www.gleeson.us/faro/

Green, R. (2004, May 11).
Upping the ante. Hartford Courant, pp. A1, A8, A9.

Gupta, R., & Derevensky, J.L. (1998).
Adolescent gambling behavior: A prevalence study and examination of the correlates with problem gambling. *Journal of Gambling Studies, 14*, 319–345.

Howard, M. (2004).
Bucking the tiger—The traditional game of faro. Retrieved January 20, 2006, from http://www.bcvc.net/faro/

Korn, D., Gibbins, R., & Azmier, J. (2003).
Framing public policy towards a public health paradigm for gambling. *Journal of Gambling Studies, 19*, 235–256.

Morehead, A.H., & Mott-Smith, G. (2001).
Hoyle's rules of games. New York: New American Library.

Murse, T. (2004, June 29).
Slots would "exploit" elderly and poor, GOP officials claim here. *Lancaster Online.* Retrieved January 20, 2006, from http://www.lancasteronline.com/pages/news/local/7296

Nelson, W. (2004).
Faro. The gentleman's page: A practical guide for the 19th century American man. Retrieved January 20, 2006, from http://www.lahacal.org/gentleman/faro.html

Pinkerton, S. (2003, June 18).
Liz's Story. *The Adelaide Advertiser*.

Rose, I.N. (1986).
Gambling and the law. *Los Angeles: Gambling Times*.

Rush, B., Moxam, R.S., & Urbanoski, K. (2002).
Characteristics of people seeking help from specialized programs for the treatment of problem gambling in Ontario. *Electronic Journal of Gambling Issues, 6*. Retrieved January 20, 2006, from http://www.camh.net/egambling/archive/pdf/EJGI-issue6/EJGI-issue6-complete.pdf

Shiflett, D. (2002, July 1).
Video poker, flushed: Or, the rotting of a "fruit machine." *National Review*. Retrieved January 20, 2006, from http://www.findarticles.com/p/articles/mi_m1282/is_12_54/ai_87130364

Smith, G.J., & Wynne, H.J. (2004).
VLT gambling in Alberta: A preliminary analysis. Alberta Gambling Research Institute. Retrieved January 20, 2006, from http://www.abgaminginstitute.ualberta.ca/20.cfm

Stinchfield, R. (2003).
A comparison of gambling by Minnesota Public school students in 1992, 1995, and 1998. *Journal of Gambling Studies, 17*, 273–296.

Thorp, E.O. (1976).
Probabilities and strategies for the game of Faro, in W.R. Eadington (Ed.), *Gambling and Society* (pp. 443–466). Springfield, IL: Thomas Publishers.

Turner, N.E. (2005).
A review of Sucker's Progress: An informal history of gambling in America by Herbert Asbury, 1938. *Journal of Gambling Issues, 13*. Retrieved January 20, 2006, from

http://www.camh.net/egambling/archive/pdf/JGI-Issue13/JGI-Issue13-turner.pdf

Turner, N.E., & Horbay, R. (2004).
How do slot machines and other electronic gambling machines actually work? *Journal of Gambling Issues, 11*. Retrieved January 24, 2006, from http://www.camh.net/egambling/issue11/jgi_11_turner_horbay.html

Twain, M. (2004).
The professor's yarn. In J. Stravinsky (Ed.), *Read 'em and weep: A bedside poker companion*. New York: HarperCollins. (Reprinted from Life on the Mississippi, 1882.)

USPC (United States Playing Card Company). (2004).
Casino games. Retrieved January 20, 2006, from http://www.usplayingcard.com/gamerules/casinogames.html

Weisstein, E.W. (2005).
Gambler's ruin. From MathWorld—A Wolfram Web Resource. Retrieved January 20, 2006, from http://mathworld.wolfram.com/GamblersRuin.html

Wichmann, B.A., & Hill, I.D. (1982).
An efficient and portable pseudo-random number generator. *Applied Statistics, 31*, 188–190.

Wong, S., & Spector, S. (1996).
The complete idiot's guide to gambling like a pro. New York: Alpha Books.

Wynne, H., & Shaffer, H.J. (2003).
The socio-economic impact of gambling: The Whistler symposium. *Journal of Gambling Studies, 19*, 111–121.

Illustration credits:
Figures 1, 4, 5, and 6 are photographs provided by Mark Howard. Figures 2 and 3 were drawn by Naomi Turner and edited by Nigel Turner.

Manuscript history: submitted: September 21, 2004; accepted: July 26, 2005. All URLs were available at the time of submission. This article was peer reviewed.

For correspondence: Nigel Turner, PhD, Scientist, Centre for Addiction and Mental Health, 33 Russell Street, Toronto, Canada M5S 2S1. Phone (416) 535-8501, ext. 6063, fax (416) 595-6899, e-mail: Nigel_Turner@camh.net

Contributors: NT conceived of the idea for the paper. MH provided specific information on the history of faro, its game play, the social context, and the rules of the game. NT conducted the computer simulations. WS provided a broad perspective on the historical issues and their relevance today. NT wrote the first and last drafts. All authors collaborated on revisions.

Competing interests and funding: None declared.

Ethical approval: None required. No people or animals were involved in this study.

Nigel Turner, PhD, is a research scientist at the Centre for Addiction and Mental Health (CAMH) in Toronto. He received his doctorate in cognitive psychology at the University of Western Ontario (1995) and has worked for CAMH for the past 11 years. He has extensive experience in quantitative research methods, including psychometrics, surveys, experimental studies, and computer simulations. Nigel has received grants from the National Center for Responsible Gaming and the Ontario Problem Gambling Research Centre and funding from the Ontario Ministry of Health. He has published in peer-reviewed journals and has given a large number of conference presentations. He is particularly interested in cognitive models of problem gambling and has authored three papers on gambling systems. Outside of CAMH, Nigel has a keen interest in history and takes part in reenactments of historically important 19th-century battles.

Mark Howard is a police investigator in the San Francisco Bay area and has been in law enforcement since 1985. He has been a member of the International Police Association and the Northern California Gang Investigators' Association for the past 10 years. His primary hobby is the sport of "Cowboy Action Shooting" at Old West reenactments. He has also conducted extensive research into Old West gambling, focusing in particular on the game of faro. In addition to writing articles and columns on faro, he deals and teaches faro to reenactors and cowboy action shooters in an "authentic saloon setting" at annual western events throughout California and northern Nevada. He is considered a foremost authority on the game and hosts a not-for-profit Web site dedicated to the preservation and better understanding of this traditional Old West gambling game at www.bcvc.net/faro.

Warren Spence, MA, was a research coordinator at the Centre for Addiction and Mental Health, Toronto. He is currently the director of clinical research for the Toronto-based Sleep and Neuropsychiatry Institute. He has been a co-investigator on two studies of pathological gambling. He has had an active interest in the scientific study of acupuncture since the 1980s.

issue 16 — april 2006

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

research

Characteristics of people seeking treatment for problem gambling in Ontario: Trends from 1998 to 2002

Karen A. Urbanoski & Brian R. Rush, Centre for Addiction and Mental Health, Toronto, Ontario, Canada.
E-mail: Karen_Urbanoski@camh.net

Abstract

This report summarizes the characteristics of individuals who sought help within Ontario's specialized problem gambling treatment system during its first four years of operation. All clients recorded in the provincial information system database as having entered a gambling treatment program between April 1, 1998, and March 31, 2002, are included. Broad trends and gender differences in demographic characteristics, gambling behaviours, and problem severity are considered and compared by fiscal year. Compared to population-based estimates of problem gambling, the number of clients served by this specialized treatment system is low but steadily increasing. Women have consistently made up approximately one third of clients entering treatment in each fiscal year, and their sociodemographic profile, their gaming preferences, and the duration of their problem gambling careers differ from those of male clients. The growing proportion of clients of both genders seeking help for problems related to slot machines is of primary concern and warrants further study. **Key words**: problem gambling, treatment system, help seeking, gender comparisons, trends analysis

Introduction

The past two decades have witnessed extensive growth in the legalized gambling industry in most Western nations. A recent study of the expansion of Canada's gambling industry revealed that the gross revenue generated by legalized gambling in 1999–2000 for all provincial governments combined was over $9 billion, representing a threefold increase since 1992. The Ontario gambling industry, which employs over 17,000 individuals, drew in the largest portion at over $3.3 billion in fiscal 1999–2000 (Azmier, 2001).

Lotteries have been available in Ontario since 1975. In 1985, legislative responsibility for gambling was transferred from the federal government to the provincial governments (Thompson, 2001). Until the mid-1990s, Ontario only permitted charities to sell raffle and tear-off tickets and conduct bingos. Since that time, the gambling industry has expanded significantly. Throughout the 1990s, a number of charity and commercial casinos were opened in communities across the province, and in late 1998, slot machines began to be installed at racetracks. There are now 12 lottery games available at over 10,600 licensed retailers, and 4 commercial casinos, 6 charity casinos, and 16 slot machine facilities at racetracks currently in operation in Ontario. In addition, bingos currently enjoy wide availability, with hundreds of bingo halls located throughout the province (see http://www.bingohalls.ca/ontario.htm). While slot machines are available at racetracks, they are not, however, currently permitted in bingo halls.

The gambling industry in Ontario is regulated primarily by two government bodies: the Ontario Lottery and Gaming Corporation (OLGC; http://corporate.olgc.ca) is responsible for operating these gambling venues, while the Alcohol and Gaming Commission of Ontario (AGCO; http://www.agco.on.ca) regulates casino gaming and administers gaming licenses to charitable and religious organizations for bingos and raffles. Charity casinos are owned and operated by the OLGC, while commercial casinos are owned by the OLGC but are privately operated. The distribution of revenue also differs, with charity casinos required to distribute $100 million per year to Ontario charities through the Ontario Trillium Foundation.

Since 1999, the Ontario government has dedicated 2% of gross slot machine revenues from charity casinos and racetracks to fund treatment, prevention, and research initiatives for problem gambling. This figure represented $3.5 million in fiscal 1998–1999, increasing to $21.7 million in fiscal 2001–2002. A portion of these funds is dedicated to 47 specialized problem gambling treatment programs that are currently providing community counselling and information services to problem gamblers and their family members and significant others across the province. Other government-funded projects include the Ontario Problem Gambling Helpline (OPGH), a province-wide information and referral service that directs those in need into the specialized problem gambling treatment system, and a comprehensive training program for counsellors and allied professionals operating out of the Centre for Addiction and Mental Health (CAMH) in Toronto. In addition, research is funded through the Ontario Problem Gambling Research Centre (OPGRC), established in 2000. The operating budget of the OPGRC is currently approximately $4 million (OPGRC, 2003–04).

Recent population-based research in Ontario suggests that between 3% and 4% of Ontario adults are problem gamblers (Adlaf & Ialomiteanu, 2001; Wiebe, Single, & Falkowski-Ham, 2001). Studies of treatment populations, and especially system-wide monitoring and analyses, are important adjuncts to this type of population research. In this way, existing gaps in treatment for problem gamblers, whether across the province or within certain regions, can be identified. In addition, gaps in treatment for specific types of problem gamblers for whom treatment may not be appealing or available (e.g., women, specific ethnocultural groups, youth) can be located and the information used to guide health policy and treatment delivery.

Recent system-wide analyses of problem gamblers entering treatment have been conducted in the United States (Moore, 2003; Shaffer, LaBrie, LaPlante, & Kidman, 2002), Australia (Crisp et al., 2004; Jackson, Thomas, Holt, & Thomason, 2005; South Australian Department of Human Services, 2003), and New Zealand (Paton-Simpson, Gruys, & Hannifin, 2004); however, there is a distinct lack of such research in Canada, the exception being previous studies by the present authors (Rush & Shaw Moxam, 2001; Rush, Shaw Moxam, & Urbanoski, 2002; Rush & Urbanoski, 2005). The purpose of the present report is to describe trends in the sociodemographic and gaming profiles of individuals receiving treatment from publicly funded problem gambling programs over the period of four fiscal years between April 1, 1998, and March 31, 2002. Explicit attention is paid to gender differences because of established differences in the ways that men and women both gamble and access health services. Gender differences and especially gender-specific changes and trends in gambling problems and treatment-seeking behaviours are of high relevance to treatment providers and those involved in system planning and management.

All data are summarized by fiscal year (i.e., April 1 to March 31), as this corresponds to the data-reporting periods of the treatment programs to the Ontario Ministry of Health. The present report builds upon a previous paper, which described clients entering the system between January 1, 1998, and April 30, 2000 (Rush et al., 2002; see also Rush & Shaw Moxam, 2001, and Rush & Urbanoski, 2005, for more detailed accounts of this treatment system).

Methods

Study participants

This study includes all clients admitted to Ontario's publicly funded gambling treatment system between April 1, 1998, and March 31,

2002 (*n* = 6966). Approximately 150 addiction treatment programs are currently funded by the province's Ministry of Health and are required to participate in an ongoing client-based information system, the Drug and Alcohol Treatment Information System (DATIS; http://www.datis.ca/), which monitors the number and types of clients treated (see Ogborne, Braun, & Rush, 1998, for an overview of the early development of DATIS, and Rush, 2002, for a more recent description of the system). There are currently 47 specialized problem gambling programs operating within the organizational context of selected alcohol and drug treatment agencies in Ontario.

An individual is entered into DATIS when he or she is registered in a treatment program. For the majority of programs, this will mean there has been a face-to-face contact with the client. One treatment program has a well-established telephone counselling service and, as a general rule, callers will be registered if the call is for counselling and exceeds 20 minutes. With the exception of this specialized telephone counselling service, clients who receive telephone support but choose not to formally enter a treatment program are excluded from DATIS. In addition, individuals who present in crisis, seeking immediate assistance, but who are unwilling to pursue longer-term treatment, are similarly excluded from DATIS.

Instruments and procedures

The data are routinely captured on a series of forms at the individual program sites. At intake, program staff (e.g., counsellors and intake coordinators) collect information on client demographic characteristics, the frequency of different gambling activities, the location of gambling, and problem severity using the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987). A complete set of the forms can be found in Rush and Urbanoski (2005, Appendix B) or are available from the authors upon request. The information is collected on Teleforms, faxed to a central number, and managed electronically in a computerized system by DATIS staff located in Toronto.

Client and item nonresponse

During the period covered by these data, various contacts with programs were made to assess the completeness of data reported to DATIS. Reasons for nonreporting included program-specific issues such as service interruptions due to staffing limitations. Although efforts were made to ensure the completeness of reporting, some programs did not provide the required forms for all clients. It is difficult to estimate the extent and impact of this underreporting. An improved on-line information system began operation in 2003, holding considerable promise for increased data

quality and ease of reporting.

In addition to client nonreporting, there is a variable amount of specific item nonresponse among clients contained in the database. The amount of missing data was substantial for four of the variables considered in the present study: ethnicity (23.8%), years of negative consequences related to gambling (18.0%), problem gambling activities (30.6%), and problem gambling settings (30.9%). To examine potential nonresponse bias, those who provided data were compared to nonresponders for each of these four variables in terms of gender, age, and fiscal year. Nonresponders were significantly more likely to be male and younger on all four variables ($p < .001$). Further, the amount of nonresponse increased steadily over the four-year period for each variable ($p < .001$). Thus, the findings presented in this paper must be interpreted keeping this caveat in mind. However, it should also be noted that these missing data were determined to be almost exclusively from one large treatment centre. All trends analyses presented in this paper were rerun excluding these data, and no differences were found in the magnitude, direction, or interpretation of the results.

Analysis

ANOVA and chi-square tests ($\alpha = 0.05$) were conducted to evaluate statistical trends in the sociodemographic characteristics and gambling behaviours of clients within the system over the four-year study period. Significant findings are highlighted in the text and tables where appropriate.

Results

Figure 1 displays the distribution of individuals entering Ontario's specialized gambling treatment system between 1998 and 2002 by fiscal year. These figures include all those who accessed the system (i.e., those seeking help for their own or another person's gambling problem). Since the beginning of fiscal 1998–1999, a total of 6966 clients were reported to DATIS as having been registered with a problem gambling treatment program in Ontario. The total provincial caseload increased steadily over the four-year period, with the largest increase seen between fiscal 1998–1999 and 1999–2000.

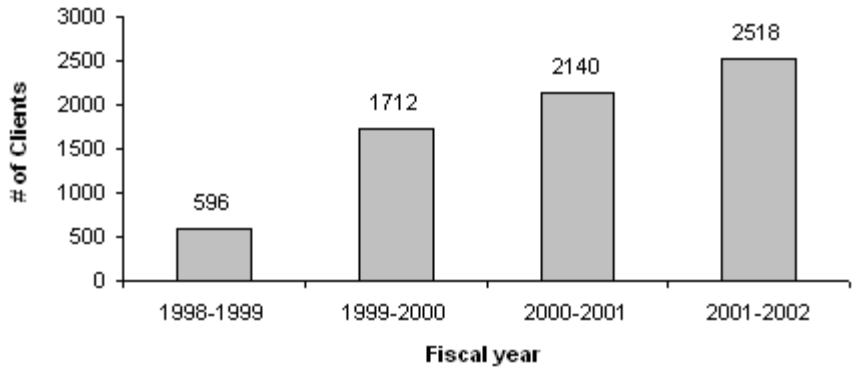

Figure 1
Annual caseload, fiscal years 1998–1999 through 2001–2002

The gender distribution of clients in the system remained constant over the four years of study: the proportion of men in treatment was 58.6% in 1998–1999, 58.3% in 1999–2000, 56.7% in 2000–2001, and 56.4% in 2001–2002.

Table 1 summarizes the trend in the reason for seeking help among clients admitted since fiscal 1998–1999. The majority of clients in each fiscal year sought help for their own gambling problems. More women than men were among those seeking help for another person's gambling problem. This category includes spouses, family members, and friends of individuals exhibiting problematic gambling behaviours who are concerned and are seeking help and information.

The proportion of women seeking help for another person's gambling problem increased between fiscal 1998–1999 and 1999–2000 from 26% to 38%, with a concomitant decrease in the proportion seeking help for their own gambling problem. These differences over time were significant ($\chi^2_6 = 26.78$, $p < .001$). While the proportion of men who sought help for another's gambling problem also increased slightly over the four-year period, from approximately 6% to 9%, the vast majority of men in treatment in the later fiscal years continued to seek help for their own gambling problems. There was a significant association between year and reason for seeking help; however, this is likely due to the different distribution found in 1999–2000 and is probably not a clinically meaningful finding ($\chi^2_6 = 35.44$, $p < .001$).

Table 1
Reason for seeking help by gender

Reason for seeking help	1998–1999	1999–2000	2000–2001	2001–2002
Men*	(*n* = 346)	(*n* = 976)	(*n* = 1198)	(*n* = 1410)
Another's gambling	5.8%	6.5%	8.8%	8.7%
Own gambling	89.3%	85.6%	86.8%	88.1%
Both	4.9%	8.0%	4.4%	3.2%
Women*	(*n* = 241)	(*n* = 703)	(*n* = 914)	(*n* = 1086)
Another's gambling	25.7%	37.7%	36.7%	37.6%
Own gambling	63.1%	58.2%	58.3%	57.1%
Both	11.2%	4.1%	5.0%	5.3%

Note. Excludes *n* = 29 (0.4%) missing on gender and *n* = 63 (0.9%) missing on reason for seeking help. *$p < .001$.

The remainder of this report describes the distributions and trends in the characteristics of those with gambling problems, types of gambling behaviours, and problem severity. As such, the data represent those clients who sought help for their own gambling problems or for *both* their own and a significant other's gambling problems (i.e., those who were seeking help *only* for another person's gambling problem are excluded). These individuals are referred to as *principal clients* (*n* = 5512).

Because women make up a relatively greater proportion of those seeking help for another person's gambling problem, the gender composition changes when only principal gambling clients are considered. Among principal clients, the proportion of men in treatment was 64.6% in 1998–1999, 67.6% in 1999–2000, 65.4% in 2000–2001, and 65.6% in 2001–2002.

Table 2 describes the mean age at admission of principal clients over the four-year study period. Women were older than their male counterparts in treatment and their mean age at admission increased significantly over the four-year study period ($F_{3,1857} = 4.62$, $p = .003$). Post-hoc Tukey tests revealed that this was due to significant differences between the first two and the last two years of the study. There was no significant trend in the mean age at admission of men across the four-year study period ($F_{3,3576} = 0.73$, $p = .537$).

Table 2
Age at admission by gender

Age	1998–1999	1999–2000	2000–2001	2001–2002
Men	(*n* = 325)	(*n* = 902)	(*n* = 1083)	(*n* = 1270)
Mean age (yrs)	38.8	39.3	39.8	39.7
Women	(*n* = 178)	(*n* = 434)	(*n* = 575)	(*n* = 674)
Mean age (yrs)*	42.7	43.3	44.7	45.4

Note. Includes principal clients only; excludes *n* = 19 (0.3%) missing on gender and *n* = 52 (0.9%) missing on age. *$p < .01$.

The vast majority of clients of both genders were Caucasian (Table 3). There were proportionately more Caucasian women than men and more Asian men than women in treatment during the study period. The proportion of Caucasian men in treatment remained fairly constant over the four-year period, with a steady increase in the proportion of Asian men and a concomitant decrease in those of other ethnic backgrounds; however, these differences were not significant ($\chi^2_9 = 15.71$, $p = .073$). The proportion of Caucasian women increased from 81% to 86%, offsetting a decrease in the proportion of Aboriginal or First Nations women entering treatment. These trends in ethnicity among the female clients were statistically significant ($\chi^2_9 = 17.169$, $p = .046$).

Table 3
Ethnicity by gender

Ethnicity	1998–1999	1999–2000	2000–2001	2001–2002
Men	(*n* = 302)	(*n* = 691)	(*n* = 766)	(*n* = 797)
Caucasian	79.8%	76.1%	77.4%	77.5%
Asian	9.6%	11.3%	12.3%	13.7%
Aboriginal	2.3%	5.6%	3.4%	3.1%
Other	8.3%	6.9%	6.9%	5.6%
Women*	(*n* = 164)	(*n* = 383)	(*n* = 499)	(*n* = 578)
Caucasian	80.5%	83.0%	83.2%	85.8%
Asian	7.9%	3.9%	5.8%	6.7%
Aboriginal	8.5%	8.4%	7.4%	3.6%
Other	3.0%	4.7%	3.6%	3.8%

Note. Includes principal clients only; excludes *n* = 19 (0.3%) missing on gender and *n* = 1313 (23.8%) missing on ethnicity. *$p < .05$.

Clients were asked to indicate if they were seeking help specifically for a gambling problem or if their gambling problem was identified over the course of treatment for another problem (e.g., for problems related to their alcohol and/or drug use) (Table 4).

Approximately 90% of clients in each fiscal year reported seeking help specifically for a gambling problem, with little difference by gender. There was a slight increase in the proportion of clients of both genders who sought help specifically for a gambling problem over the four-year period, which was statistically significant (men: $\chi^2_3 = 22.33$, $p < .001$; women: $\chi^2_3 = 16.91$, $p = .001$).

Table 4
Problem identification by gender

Problem identification	1998–1999	1999–2000	2000–2001	2001–2002
Men*	(*n* = 318)	(*n* = 896)	(*n* = 1073)	(*n* = 1267)
Sought help because of gambling	88.7%	89.5%	92.3%	94.4%
Gambling problem identified in treatment	11.3%	10.5%	7.7%	5.6%
Women*	(*n* = 168)	(*n* = 431)	(*n* = 566)	(*n* = 667)
Sought help because of gambling	88.7%	86.8%	91.2%	93.9%
Gambling problem identified in treatment	11.3%	13.2%	8.8%	6.1%

Note. Includes principal clients only; excludes *n* = 19 (0.3%) missing on gender and *n* = 107 (2.0%) missing on problem identification. *$p < .001$.

Table 5 presents the gender distributions of the five most frequently cited problem gambling activities reported by clients. As clients were given the opportunity to provide up to three problem activities, the categories are not mutually exclusive and column percentages do not sum to 100. Among men, the top five problem activities were card games, lottery tickets, scratch and tear-off tickets, slots, and sports events. The most common problem activities were similar among women, with the exception that bingo was identified, where sports events were not. A greater proportion of men than women reported card games over the four years of study, while a greater proportion of women reported slots and scratch and tear-off tickets as problem activities. In each fiscal year, similar proportions of men and women reported lotteries as problem activities; however, this decreased over time. The decrease in problematic lottery play reached statistical significance among men ($\chi^2_3 = 8.13$, $p = .043$) but not women ($\chi^2_3 = 1.07$, $p = .784$). The proportion of men reporting sports games also decreased significantly over the four years ($\chi^2_3 = 38.69$, $p < .001$), as did the proportion of women

reporting bingo as a problem activity ($\chi^2_3 = 28.38$, $p < .001$). Offsetting these declines was the growing proportion of clients of both genders reporting problematic slot machine play, which increased by approximately 27 percentage points in men ($\chi^2_3 = 97.52$, $p < .001$) and 13 percentage points in women ($\chi^2_3 = 41.81$, $p < .001$) between 1998 and 2002. Notably, fully half of men and three quarters of women who entered treatment in 2001–2002 reported slots as a problem activity.

Table 5
Trends in problem gambling activities by gender

Problem activities	1998–1999	1999–2000	2000–2001	2001–2002
Men	(*n* = 277)	(*n* = 621)	(*n* = 677)	(*n* = 729)
Cards	41.9%	39.3%	37.1%	38.5%
Lottery tickets*	37.9%	34.3%	29.1%	32.6%
Scratch/tear tickets	26.7%	29.5%	24.7%	25.7%
Slots**	22.4%	31.1%	47.7%	49.1%
Sports**	34.7%	26.4%	20.5%	17.8%
Women	(*n* = 144)	(*n* = 347)	(*n* = 464)	(*n* = 550)
Bingo**	42.4%	49.6%	38.4%	32.0%
Cards	13.9%	12.1%	13.1%	12.5%
Lottery tickets	36.1%	32.6%	32.1%	31.6%
Scratch/tear tickets**	49.3%	53.0%	43.5%	37.5%
Slots**	59.7%	51.9%	65.1%	72.7%

Note. Includes principal clients only; column %s will not sum to 100 because clients were allowed to report multiple problem activities; excludes *n* = 19 (0.3%) missing on gender and *n* = 1684 (30.6%) missing on problem gambling activity. *$p < .05$. **$p < .001$.

Table 6 provides the gender distributions of the five most frequently reported gambling settings. As with gambling activities, clients were allowed to name up to three preferred gambling settings, so column percentages do not sum to 100. Among men, the most commonly reported problem gambling settings were commercial casinos, charity casinos, racetracks, lottery outlets, and off-track betting parlours. Similar problem settings were reported by women, with the exception that bingo halls were reported in place of off-track betting parlours. Significant increases were found in the proportions of clients reporting charity casinos (men: $\chi^2_3 = 21.24$, $p < .001$; women: $\chi^2_3 = 28.83$, $p < .001$) and racetracks (men: $\chi^2_3 = 17.92$, $p < .001$; women: $\chi^2_3 = 34.83$, $p < .001$). The increase in problematic play at racetracks among women is especially noticeable, as this

figure grew from less than 5% to over 20% during the four years of study. These increases were offset by significant decreases in problem gambling at off-track betting parlours among men (χ^2_3 = 18.42, p < .001) and bingo halls among women (χ^2_3 = 39.58, p < .001).

Table 6
Trends in problem gambling settings by gender

Problem settings	1998–1999	1999–2000	2000–2001	2001–2002
Men	(*n* = 277)	(*n* = 610)	(*n* = 671)	(*n* = 738)
Commercial casinos	60.3%	62.5%	67.4%	65.6%
Charity casinos*	11.2%	10.8%	16.1%	19.0%
Racetracks*	18.1%	17.7%	24.4%	26.0%
Lottery outlets	49.5%	51.8%	46.2%	46.1%
Off-track betting*	18.4%	15.2%	12.2%	9.5%
Women	(*n* = 147)	(*n* = 343)	(*n* = 465)	(*n* = 539)
Commercial casinos	71.4%	59.8%	64.5%	64.7%
Charity casinos*	6.8%	7.6%	18.3%	17.1%
Bingo halls*	49.0%	55.7%	40.6%	35.1%
Racetracks*	4.8%	10.2%	15.1%	21.3%
Lottery outlets	45.6%	56.0%	49.5%	47.3%

Note. Includes principal clients only; column percentages will not sum to 100 because clients were allowed to report multiple problem settings; excludes *n* = 19 (0.3%) missing on gender and *n* = 1703 (30.9%) missing on problem gambling settings. *p < .001.

Gambling problem severity was assessed at intake using the SOGS. The SOGS is a widely used screening tool for assessing the severity of problem gambling based on the diagnostic criteria for problem and pathological gambling contained in the *Diagnostic and statistical manual of mental disorders* (3rd. ed.) (APA, 1980). Scores of one through four indicate the presence of problems associated with gambling, with higher scores indicating greater degrees of problematic behaviour. A score of five or greater is typically considered as indicative of pathological gambling (Lesieur & Blume, 1987). In all study years, over 90% of clients scored above five on the SOGS, with very little gender difference between scores at any level. There was no notable overall or gender difference in the average SOGS scores across the four fiscal years in this treatment system (data not shown).

Table 7 shows the duration of gambling problems within this treatment population in terms of the mean number of years during

which gambling had had a negative impact on the client's life prior to this treatment episode. Across all years of study, women reported relatively fewer years of negative consequences than did men. There was no significant difference in the mean number of years of negative consequences across the four years of the study period (men: $F_{3,2773} = 1.48$, $p = .218$; women: $F_{3,1719} = 2.38$, $p = .068$).

Table 7
Number of years of negative consequences of gambling by gender

Years of negative consequences	1998–1999	1999–2000	2000–2001	2001–2002
Men	(*n* = 293)	(*n* = 741)	(*n* = 842)	(*n* = 901)
Mean # years	7.20	7.84	7.10	7.07
Women	(*n* = 154)	(*n* = 399)	(*n* = 534)	(*n* = 636)
Mean # years	4.09	4.84	4.54	4.08

Note. Includes principal clients only; excludes *n* = 19 (0.3%) missing on gender and *n* = 993 (18.0%) missing on years of negative consequences.

Discussion

This report summarizes the number and characteristics of clients seeking treatment in Ontario's publicly funded problem gambling treatment system between April 1, 1998, and March 31, 2002. The data presented are reported on an ongoing basis to DATIS, the mandatory provincial client-based information system for specialized addiction services. In total, 6966 clients were reported to have sought help within this treatment system over the four-year study period. The steady increase in the system caseload since April 1998 may suggest an increasing acceptance of the need for treatment for problem gambling and/or an increase in the awareness of the availability of help through this specialized problem gambling treatment system. This is supported by the increasing proportion of clients entering treatment specifically for their gambling problems, rather than having their gambling problems identified over the course of treatment for other addiction-related problems.

In June 2000, the CAMH Monitor, an ongoing telephone survey of the adult population of Ontario (18 years and older), began including questions on gambling behaviour and problems (Adlaf & Ialomiteanu, 2001). For calendar year 2000, the weighted estimate of problem gambling, obtained using a shortened version of the SOGS, was 2.6% of the adult Ontario population (3.2% of men and 1.9% of women). This estimate remained steady through 2001,

with 2.8% classified as problem gamblers in that calendar year (3.3% of men and 2.4% of women). A second study conducted jointly by the Canadian Centre on Substance Abuse and the Responsible Gambling Council of Ontario provides a snapshot of gambling activities and related problems among Ontario adults (18 years and older) in the spring of 2001 (Wiebe et al., 2001). In this study, the weighted estimate of problem gambling, obtained using the Canadian Problem Gambling Index (CPGI; Ferris & Wynne, 2001), was somewhat higher than that obtained by the CAMH Monitor at 3.8% (4.5% of men and 3.1% of women).

It is not surprising that these estimates differ, as the surveys used different problem gambling measures and different sampling and weighting strategies. Nonetheless, assuming an adult population of approximately 8.9 million in Ontario in 2001 (Wiebe et al., 2001), these prevalence estimates suggest a rough total of 240,000 to 340,000 adult problem gamblers in Ontario in 2000–2001. This indicates a potentially large treatment gap when compared to the treatment system data collected by DATIS. Statistics Canada recently conducted a nationwide health survey, the Canadian Community Health Survey (Cycle 1.2), which assessed gambling behaviours and related problems also using the CPGI. With its large sample size and high response rate, this survey is expected to provide more robust provincial and regional estimates of the extent of problem gambling in the community.

In considering this treatment gap, it is important to recognize that DATIS captures only publicly funded specialized problem gambling treatment programs and does not cover the many other treatment and support services available from Gamblers Anonymous/ GAMANON, family physicians, community mental health services, employee assistance programs, credit counsellors, and religious and spiritual leaders. The OPGH also plays an important role in providing crisis support, information, referral, and brief intervention. The number of calls to the OPGH for information and/or treatment was 4611 in fiscal year 2000–2001 and 4741 in 2001–2002 (Drug and Alcohol Registry of Treatment, 2004).

Client characteristics

A more detailed examination of the sociodemographic profiles and gambling activities of clients within this treatment system reveals a number of notable findings and trends and provides suggestions for further studies of problem gamblers both in treatment and living in communities within Ontario.

Importantly, the data suggest little change in the gender ratio of clients within this treatment system over the four-year period considered. Including all clients within the system (i.e., those seeking help for their own or another person's gambling problem),

the ratio of men to women in treatment in fiscal years 1998–1999 and 1999–2000 was 1.4, decreasing to 1.3 in 2000–2001 and 2001–2002.

The majority of clients accessing the system for treatment between 1998 and 2002 did so for their own gambling problems. Similar to research in other jurisdictions, women were more likely to be seeking help for the gambling problems of family members and significant others (Jackson et al., 2005; Moore, 2003; Paton-Simpson et al., 2004; Shaffer et al., 2002; South Australian Department of Human Services, 2003). As a result, when those who are seeking help for the problems of others are excluded from the analysis, the gender ratio of clients in treatment widens. In fiscal 1998–1999, the ratio of male to female clients in treatment for their own gambling problems (i.e., excluding family members and significant others) was 1.8. This increased slightly to 2.1 in fiscal 1999–2000, and remained steady at 1.9 in both fiscal 2000–2001 and 2001–2002. Thus, across all four years of the study, men made up approximately two thirds of clients within the specialized gambling treatment system in Ontario.

These figures are in contrast to those presented in recent system-wide research reports from Australia, New Zealand, and the United States, in which women represent 40% to 50% of new gamblers admitted to treatment (excluding those who are seeking help for another person's gambling problem) (Jackson et al., 2005; Moore, 2003; Paton-Simpson et al., 2004; Shaffer et al., 2002; South Australian Department of Human Services, 2003). The community surveys conducted in Ontario, however, provide the optimal comparison point for determining the appropriateness of the gender distribution found in treatment. For instance, in the 2001 community study of gambling in Ontario, the ratio of male to female problem gamblers was approximately 1.4 (Wiebe et al., 2001). This would suggest that men were overrepresented in specialized gambling treatment in Ontario at that time, as our data indicate that the ratio of men to women in treatment was 1.9 in 2001–2002. However, it should be noted again that many potential sources of help, including family physicians and community mental health services, were not considered in this study. To the extent that these sources of help are preferred among female problem gamblers, their representation in gambling treatment as a whole may be underestimated by our figures.

While the proportion of men who sought help for another person's gambling problem increased slightly over the four-year period, from approximately 6% to 9%, the vast majority of men in treatment in the later fiscal years were seeking help for their own gambling problems. Future studies should address the extent to which men experiencing problems related to the gambling behaviours of significant others constitute an underserved subgroup of the

population.

Recent work conducted in the United States highlights the importance of examining the joint effects of gender and cultural background on gambling behaviours and related problems (Volberg, 2003). Specific to the situation in Ontario, further studies should examine the ethnocultural background of problem gamblers in the community to explore factors associated with the trend toward an increasing proportion of Asian men and the significantly decreasing proportion of Aboriginal/First Nations women seeking treatment. Specifically, an examination of the prevalence of problem gambling among Asian people living in Ontario should be conducted to identify whether Asian men in the community are more likely to suffer from problems related to gambling, or if they are simply more likely to seek and/or receive treatment. Such research should also explore these issues within potentially important subgroups of the Asian population. The decrease in the proportion of Aboriginal or First Nations women seeking treatment for problem gambling should also be addressed to identify any existing unmet need for treatment within this subpopulation of Ontario.

Gambling activities and problem severity

Gender differences in gaming preferences also mirror those found by previous studies (Adlaf & Ialomiteanu, 2001; Crisp et al., 2004; Hraba & Lee, 1996; Ibanez, Blanco, Moreryra, & Saiz-Ruiz, 2003; Jackson et al., 2005; Ladd & Petry, 2002; Moore, 2003; Paton-Simpson et al., 2004; Potenza et al., 2001; Rush et al., 2002). Over time, the proportion of men reporting problems with lotteries and sports events and the proportion of women reporting problems with bingo declined significantly. These were offset primarily by increases in the proportions of both men and women reporting problems with slot machines over the four-year period. This may be a result of the overall increase in availability of slot machines after their installation at racetracks, which began in late 1998. In support of this finding, the proportion of clients of both genders reporting racetracks as problem gambling settings also showed a highly significant increase over the four-year period since fiscal 1998–1999.

The level of problematic slot machine play in this treatment sample deserves attention. Electronic gaming machines (EGMs), which include slot machines, present an important opportunity for provincial government revenue generation. Net revenues from noncasino EGMs (e.g., lounges, racetracks) rose by 1369% between 1992–1993 and 1999–2000, over twice the rate of increase in revenue generated from casino gambling (Azmier, 2001). Research has suggested that EGMs may be more problematic than other forms of gambling because of their wide

availability and accessibility, technological advances directed at attracting and retaining players, the low skill level required to play, and a hypothesized higher addictive potential resulting from a fast rate of play and short payout intervals (Azmier, 2001; Breen & Zimmerman, 2002; Cote, Caron, Aubert, Desrochers, & Ladouceur, 2003; Griffiths, 1999; Potenza et al., 2001).

The increase in EGM play and related problems specifically among women coinciding with their wider availability in venues that are acceptable to women has also been discussed (Crisp et al., 2004; Hing & Breen, 2001; Ohtsuka, Bruton, DeLuca, & Borg, 1997; Volberg, 2003). It is notable that in the time period considered in the present study, which corresponds to the four years following the placement of slot machines at racetracks, the prevalence of problems with slot machines among women in gambling treatment increased by 22%, while the prevalence of racetracks as a problem gambling setting among women increased by over fourfold. Considering the sheer prevalence of problem slot machine gambling among female treatment seekers in Ontario (i.e., almost three quarters of women entering treatment in 2001–2002 reported slot machines as a problem activity), further research is warranted to examine the impact of social and ethnocultural factors guiding slot machine play and the experience of related problems among women in this province.

Across all four study years, over 90% of clients received a score of five or higher on the SOGS, indicating probable pathological gambling. The consistency of the high severity of gambling problems suggests that individuals are not seeking help at an earlier stage, despite the increased availability of treatment in Ontario. As with other addictions, the feasibility and effectiveness of early interventions for those experiencing lower levels of gambling problems should be explored.

Consistent with previous studies, no gender difference was evident in the severity of problem gambling (Crisp et al., 2004; Hraba & Lee, 1996; Ibanez et al., 2003; Ladd & Petry, 2002; Tavares et al., 2003). However, women did report experiencing fewer years of negative consequences of gambling prior to seeking treatment than did men. This finding is also consistent with previous literature, which describes a telescoping effect of gambling disorders among women, whereby they experience a faster progression of pathological gambling (Ibanez et al., 2003; Ladd & Petry, 2002; Potenza et al., 2001; Shaffer et al., 2002; Tavares, Zilberman, Beites, & Gentil, 2001; Tavares et al., 2003; Westphal & Johnson, 2000). Tavares et al. (2003) suggest the later introduction to gambling among women and a preference for more addictive gaming types as potential reasons for this telescoping effect, although more research is needed to understand its specific causes.

The provincial government's problem gambling strategy continues to evolve as problem gambling treatment, prevention, and research are all still in relatively early stages of development in Ontario. To build on the currently available treatment opportunities for problem gamblers across the province, the government began funding pilot projects in fiscal year 2003–2004 testing the efficacy of direct telephone counselling and residential problem gambling treatment. Depending on the results, these pilot projects may add significant new program components to the overall continuum of care for the treatment of problem gambling in Ontario. The addition of new treatment options to the existing modalities may attract a greater and more varied proportion of individuals experiencing problems related to their gambling.

References

Adlaf, E., & Ialomiteanu, A. (2001).
2000 CAMH Monitor: Addiction and mental health indicators among Ontario adults, 1977–2000. Toronto, ON: Centre for Addiction and Mental Health.

American Psychiatric Association. (1980).
Diagnostic and statistical manual of mental disorders. (3rd ed.). Washington, DC: Author.

Azmier, J.J. (2001, August).
Gambling in Canada 2001: An overview (Gambling in Canada Research Report No. 13). Calgary, AB: Canada West Foundation.

Breen, R.B., & Zimmerman, M. (2002).
Rapid onset of pathological gambling in machine gamblers. *Journal of Gambling Studies, 18*, 31–43.

Cote, D., Caron, A., Aubert, J., Desrochers, V., & Ladouceur, R. (2003).
Near wins prolong gambling on a video lottery terminal. *Journal of Gambling Studies, 19*, 433–438.

Crisp, B.R., Thomas, S.A., Jackson, A.C., Smith, S., Borrell, J., Ho, W., et al. (2004).
Not the same: A comparison of female and male clients seeking treatment from problem gambling counselling services. *Journal of Gambling Studies, 20*, 283–299.

Drug and Alcohol Registry of Treatment. Retrieved July 29, 2004, from the Ontario Problem Gambling Helpline database.

Ferris, J., & Wynne, H. (2001, February).
The Canadian Problem Gambling Index: Final report. Ottawa,

ON: Canadian Centre on Substance Abuse.

Griffiths, M. (1999).
Gambling technologies: Prospects for problem gambling. *Journal of Gambling Studies, 15*, 265–283.

Hing, N., & Breen, H. (2001).
Profiling lady luck: An empirical study of gambling and problem gambling amongst female club members. *Journal of Gambling Studies, 17*, 47–69.

Hraba, J., & Lee, G. (1996).
Gender, gambling and problem gambling. *Journal of Gambling Studies, 12*, 83–101.

Ibanez, A., Blanco, C., Moreryra, P., & Saiz-Ruiz, J. (2003).
Gender differences in pathological gambling. *Journal of Clinical Psychiatry, 64*, 295–301.

Jackson, A.C, Thomas, S.A., Holt, T.A., & Thomason, N. (2005).
Change and continuity in a help-seeking problem gambling population: A five-year record. *Journal of Gambling Issues, 13*. Retrieved January 24, 2006, from http://www.camh.net/egambling/issue13/jgi_13_jackson.html

Ladd, G.T., & Petry, N.M. (2002).
Gender differences among pathological gamblers seeking treatment. *Experimental and Clinical Psychopharmacology, 10*, 302–309.

Lesieur, H.R., & Blume, B. (1987).
The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry, 144*, 1184–1188.

Moore, T. (2003).
Oregon gambling treatment programs evaluation update 2002. Salem, OR: Department of Human Services, Office of Mental Health and Addictions Services.

Ogborne, A.C., Braun, K., & Rush, B.R. (1998).
Developing an integrated information system for specialized addiction treatment agencies. *Journal of Behavioral Health Services and Research, 2511*, 100–107.

Ohtsuka, K., Bruton, E., DeLuca, L., & Borg, V. (1997).
Sex differences in pathological gambling using gaming machines. *Psychological Reports, 80*, 1051–1057.

Ontario Problem Gambling Research Centre. (2003–2004).
Annual Report, 2003–2004. Guelph, ON. Retrieved August 8, 2005, from

http://www.gamblingresearch.org/download.sz/Annual report 2003-04 -20website version.pdf?docid=6548

Paton-Simpson, G.R., Gruys, M.A., & Hannifin, J.B. (2004, April).
Problem gambling counseling in New Zealand: 2003 national statistics. Auckland, New Zealand: Problem Gambling Foundation.

Potenza, M.N., Steinberg, M.A., McLaughlin, S.D., Wu, R., Rounsaville, B.J., & O'Malley, S.S. (2001).
Gender-related differences in the characteristics of problem gamblers using a gambling helpline. *American Journal of Psychiatry, 158*, 1500–1505.

Rush, B. (2002, May).
Client characteristics and patterns of service utilization within Ontario's specialized addiction treatment agencies: A provincial report from DATIS. Toronto, ON: Centre for Addiction and Mental Health.

Rush, B.R., & Shaw Moxam, R. (2001, April).
Treatment of problem gambling in Ontario: Service utilization and client characteristics. Toronto, ON: Centre for Addiction and Mental Health.

Rush, B.R., Shaw Moxam, R., & Urbanoski, K.A. (2002).
Characteristics of people seeking help from specialized programs for the treatment of problem gambling in Ontario. *Electronic Journal of Gambling Issues: eGambling, 6*. Retrieved January 20, 2006, from http://www.camh.net/egambling/issue6/research/index.html

Rush B.R., & Urbanoski K.A. (2005).
Treatment of problem gambling in Ontario: Service utilization, client characteristics and trends. Toronto, ON: Centre for Addiction and Mental Health.

Shaffer, H.J., LaBrie, R.A., LaPlante, D.A., & Kidman, R.C. (2002, October).
The Iowa Department of Public Health gambling treatment services: Four years of evidence. Boston, MA: Harvard Medical School, Division of Addictions.

South Australian Department of Human Services. (2003).
Break Even problem gambling services (South Australia): Analysis of clients using services January 1, 2000–December 30, 2001. Adelaide, Australia: Author. Retrieved January 24, 2006, from http://www.familiesandcommunities.sa.gov.au/DesktopModules/SAHT_DNN2_Documents/Download/632737535091093750/break-even-problem-gambling-

services-client-data-(south-australia).pdf

Tavares, H., Martins, S.S., Lobo, D.S., Silveira, C.M., Gentil, V., & Hodgins, D.C. (2003).
Factors at play in faster progression for female pathological gamblers: An exploratory analysis. *Journal of Clinical Psychiatry, 64*, 433–438.

Tavares, H., Zilberman, M.L., Beites, F.J., & Gentil, V. (2001).
Gender differences in gambling progression. *Journal of Gambling Studies, 17*, 151–159.

Thompson, W.N. (2001).
Gambling in America: An encyclopedia of history, issues, and society. Santa Barbara, CA: ABC-CLIO.

Volberg, R.A. (2003).
Has there been a "feminization" of gambling and problem gambling in the United States? *Electronic Journal of Gambling Issues: eGambling, 8*. Retrieved January 20, 2006, from http://www.camh.net/egambling/issue8/feature/index.html

Westphal, J.R., & Johnson, L.J. (2000, June).
Gender differences in gambling behavior and social costs of gambling disorders. Paper presented at the 11th International Conference on Gambling and Risk Taking, Las Vegas, NV.

Wiebe, J., Single, E., & Falkowski-Ham, A. (2001, December).
Measuring gambling and problem gambling in Ontario. Ottawa, ON: Canadian Centre on Substance Abuse/Responsible Gambling Council (Ontario).

Manuscript history: submitted November 24, 2004; accepted: October 13, 2005. All URLs cited were available at the time of submission. This article was peer reviewed.

For correspondence: Karen Urbanoski, MSc, Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health, T306, 33 Russell Street, Toronto, Ontario, Canada M5S 2S1. Phone: (416) 535-8501, ext. 6121, fax: (416) 979-4703, e-mail: Karen_Urbanoski@camh.net, URL: http://www.camh.net/hsrcu/.

Contributors: BR conceived the study. Both authors contributed to the study design. KU conducted the data cleaning and analysis and wrote the first draft. Both authors were involved in writing the final draft of the paper.

Competing interests: None declared.

Ethical approval: Not required; these data are routinely collected at admission to any Ontario-based specialized addiction treatment agencies.

Funding: Both authors are employed by the Centre for Addiction and Mental Health, Toronto, Ontario.

Karen Urbanoski, MSc, is a research coordinator with the Health Systems Research and Consulting Unit at the Centre for Addiction and Mental Health in Toronto. She is currently also working on her PhD in health and behavioural sciences in the Department of Public Health Sciences, University of Toronto. She has an MSc in epidemiology and biostatistics from the University of Western Ontario. Her research interests broadly include the study of substance- and gambling-related problems in both treatment settings and the community. E-mail: Karen_Urbanoski@camh.net

Brian Rush, PhD, is a senior scientist with the Centre for Addiction and Mental Health in Toronto. He is currently the associate director of the Health Systems Research and Consulting Unit and an associate professor in the Department of Psychiatry at the University of Toronto. In addition, he serves as scientific advisor to DATIS. He holds an MA in psychology and a PhD in epidemiology and biostatistics and has worked for 24 years in a research and evaluation capacity in the addiction and mental health fields. His career has involved a rewarding balance of scientific work and program and policy development. One of his major research interests is the longitudinal study of the addiction treatment system in Ontario, including treatment for problem gambling. E-mail: Brian_Rush@camh.net

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

research

Classroom or cyberspace? Ethical and methodological challenges of on-line gambling surveys for adolescents

Julie Lahn, Centre for Gambling Research, Regulatory Institutions Network, Research School of Social Sciences, Australian National University.
E-mail: julie.lahn@hotmail.com

Paul Delfabbro, Department of Psychology, University of Adelaide, South Australia

Peter Grabosky, Centre for Gambling Research, Regulatory Institutions Network, Research School of Social Sciences, Australian National University

Abstract

This paper outlines the practical and ethical implications of a recent trial of an on-line adolescent gambling survey conducted in Australia's capital city, Canberra. The main aim of the survey was to explore the potential suitability of an on-line methodology for future national gambling studies. The trial identified a number of important methodological and ethical advantages and disadvantages associated with using an on-line methodology. The principal advantage of this method is that it minimises disruption to school routines because it allows greater flexibility in the timing of the survey and in the amount of teacher time required for administration. However, the trial also provided useful insights into the potential disadvantages of this methodology, including difficulties in obtaining adequate response rates, lack of control over the administration context, and missed opportunities to obtain more detailed open-ended responses. **Key words**: on-line methodology, adolescents, surveys, schools, gambling

Introduction

This paper reflects on the merits of a recent pilot on-line gambling survey of Australian adolescent school students. The on-line survey was conducted as part of a larger research project into adolescent gambling, where the primary methodology consisted of

an identical pencil-and-paper survey (Delfabbro, Lahn, & Grabosky, 2005). The on-line survey was undertaken with a view to identifying the most appropriate method to be used in future cross-jurisdictional studies. During planning, it was envisaged that on-line surveys would enable smooth dissemination and collection of student surveys across Australia while minimising the organisational difficulties of participating school staff. It was envisaged that the electronic accessibility of on-line surveys could streamline the administration process of surveys and allow surveys to be completed by adolescents away from the classroom using any computer terminal with Internet access. During the course of conducting this survey, it became apparent that this methodology had further unforeseen advantages and disadvantages that prompted the question of whether surveys are better located in classrooms or in cyberspace. The purpose of this paper is to summarise our experiences and to provide recommendations for future research conducted using an on-line methodology.

Surveys in adolescent gambling research

Research into adolescent gambling practices is a relatively recent but absorbing area of scholarly inquiry that is expanding at a rapid pace. The major research tool of adolescent gambling studies has been the survey, which among gambling studies generally emerged and dominated during the 1990s (McGowan, 2004; see this paper for a review of qualitative and quantitative methodologies used in gambling research). Schools have been the locale of the bulk of adolescent gambling research, and the vast majority of studies have employed surveys administered to school populations. This school-based survey approach seems likely to remain the approach to adolescent gambling research, despite the appearance of qualitative alternatives based on individual interview or focus group methodologies (e.g., ACOSS, 1997; Derevensky & Gupta, 2001; Wiebe & Falkowski-Ham, 2003; Wood & Griffiths, 2002). Although alternative qualitative research projects can yield rich data, they are also labour intensive and time consuming and focus more upon individual experiences and the linguistic expression or construction of these experiences rather than on the prevalence of different behaviours or beliefs. Accordingly, larger-scale surveys are likely to remain the most effective way to obtain information from a large number of participants in the shortest possible timeframe.

Curiously, in this burgeoning field, our methodologies and their ethical implications rarely feature in debate (notwithstanding recent contributions on the measurement of problem gambling, e.g., Derevensky, Gupta, & Winters, 2003; Ladouceur et al., 2000). As a specialised and relatively new field of inquiry engaging with vulnerable research subjects, adolescent gambling research constitutes fertile ground for exploring the ethical and practical

implications of our research methods for the benefit of both future student participants and school authorities. Despite this, relatively little discussion has been directed towards the processes by which we obtain information about youth gambling. A notable exception is a recent paper (McPhee & Canham, 2002) that focuses on improving research processes, including our engagement with policy makers and community agencies, and the relationship between researchers and the educators who assist in gambling projects.

McPhee and Canham (2002) usefully draw attention to the various issues that researchers need to take into account when interacting with host institutions and, in particular, the school staff who are required to facilitate or implement the research that is conducted. Pointing to the enormous demands placed on schools by researchers (both within and beyond the field of gambling research), McPhee and Canham suggest that researchers need to be more attuned to the pressures experienced by school staff who assist in the administration of surveys, and that researchers should take these factors into account in the organization and execution of surveys, and in deciding what tasks are delegated to school staff rather than their own project staff.

Their general view resonates with our own experiences in approaching Canberra schools in 2004 to participate in a conventional pencil-and-paper gambling survey for adolescents. Very few schools appeared to be concerned about what could be considered a somewhat sensitive research topic. Assurances of school anonymity and data confidentiality were certainly noted. However, by far the most common and immediate source of disquiet, and of schools declining to participate, was the placement of additional demands on teachers' time. School representatives tend to feel overwhelmed by the number of research applications they receive each year. Educators, including principals, teachers, and school counsellors, who are involved in approving and facilitating academic research in their schools state that they are not opposed to research itself but feel that research places extra pressures on an already underresourced sector. The processing of consent forms and survey supervision are considered very time-consuming activities. Indeed, some school principals refused to be involved due to active-consent procedures, while others who had tight teaching schedules refused due to disruption to regular class activities. On occasion, despite obtaining formal agreement from a school administration to participate in the survey, classroom teachers remained reluctant to participate due to the time-consuming nature of encouraging students to return consent forms if they want to participate. In our view, such issues should be a concern not only to researchers, who rely on school co-operation as a straightforward means to access adolescent populations, but also to university ethics committees. Ethics procedures understandably tend to focus far more on issues of consent among

students than the additional burdens being placed on frequently overworked and busy teaching staff.

In Australia, there is little room to shift the informed-consent process from active to passive, as "consent to a child's or young person's participation in research must be obtained from … the parents/guardian in all but exceptional circumstances" (National Health and Medical Research Council, 1999). A young person is defined as someone who has the maturity to consent without parental involvement. Ethics committees appear to err on the side of caution and classify everyone under 18 as requiring active parental consent. While ethically grounded in protecting parental rights over children's activities, active-consent requirements have negative effects on participating schools and data validity (e.g., Bridwell, Ford, Ewing, & Ferguson, 1999; see also Haggerty, 2004). As McPhee and Canham (2002) point out, active-consent procedures produce low response rates and, likely, a biased subject population. Moreover, classroom teachers note that active-consent requirements create burdens on teachers, who inevitably facilitate the bulk of this process by reminding students (often daily) to return consent forms that have been signed by a parent or guardian. For these reasons, McPhee and Canham rightly state that researchers could do a lot to take the pressure off schools by managing the process of obtaining active consent. However, in Australia, there are legal impediments to implementing their suggested strategy of "mailing consent forms directly to parents, tracking responses, forwarding reminder slips, conducting telephone follow-ups …". While this process seems ideal, there are impediments to Australian research following this path where ethics protocols are bound by 'Information Privacy Principles' gleaned from *Privacy Act 1988* (Commonwealth). In accordance with privacy principles, schools can only release parental contact details under extreme or life-threatening circumstances. Thus, in our own context, it would be inappropriate for researchers, rather than schools, to liaise with students and parents. This means that only the school can perform any mail-outs or initiate personal contact with parents. This effectively rules out the prospect, at least in Australia, of researchers actively managing the informed-consent process in the manner suggested by McPhee and Canham's Canadian work.

In addition to modifying consent procedures, there may be other aspects of methodology that serve to relieve some of the pressure on schools. One of these factors is the requirement for teachers to administer and retrieve surveys. Thus, the aim of our trial was to investigate whether an on-line methodology could alleviate some of these difficulties and whether it could be used in future cross-jurisdictional studies potentially involving many hundreds of schools. The principal advantages we envisaged from using on-line surveys were that it required minimal teacher supervision and electronic access to and retrieval of surveys. This would mean that

students could undertake the survey at any time of the day and eliminate the need for researchers to make repeated visits to schools to collect surveys and hand out reminders. Reminders could instead be sent by e-mail to each student with the names of the nonrespondents suppressed.

The Canberra study

Prior to the completion of this survey, relatively few studies had been conducted into adolescent gambling research in Australia (e.g., Delfabbro & Thrupp, 2003; Moore & Ohtsuka, 1997; Moore & Ohtsuka, 2000; Victorian DHS, 1999), and nothing was known about adolescent gambling in the national capital, Canberra. Thus, the aim of the study was to extend previous Australian findings by investigating the prevalence of gambling, gambling-related beliefs, and problem gambling in a sample of Canberra schools. Eighteen schools agreed to participate and a total of 926 completed surveys were returned. Students were drawn from years 7 to 12 with an age range of 11 to 19 years (only 4.2% were 18 years or older). For each of the participating schools, the methodology involved a pencil-and-paper survey administered by teachers in classrooms. The research process involved several stages. After permission had been obtained from the relevant education boards, school authorities, and teachers at the respective grade levels, the first stage was to distribute consent forms to students. In some schools, access was provided to all school grades, whereas in others, it was only possible to obtain the cooperation of teachers of specific year levels or particular classes. Teachers who agreed to survey their classes were asked to distribute the consent forms to students and to ask them to return the forms by the following week. Each take-home set of documents included an information sheet for both parents and students as well as two consent forms. For students to be able to participate in the survey, they had to return the consent form signed by their parents. This further reduced the eligible population for the study to those students who obtained active parental consent (45% of all surveys handed out). Some teachers specifically set aside class time for administration of the surveys themselves, whereas others arranged times where the researcher could be present during survey administration. Of the total number of pencil-and-paper surveys, 56% were supervised by the researchers and 44% by teachers. The project results are reported elsewhere (see Delfabbro, Lahn, & Grabosky, 2005).

The same active written-consent procedure was followed for the on-line version of the survey. Both parents and students were required to give written consent prior to participating. In addition to the information contained on a take-home information sheet, a privacy statement was attached to the survey describing the project, the purpose of data collection, how the data were to be used (e.g., publications), how long the data were to be kept, the

contact address of the researchers, how the Web site was secured, how the data were to be secured, and a warning about the insecurity of the Internet as a means of transferring data, as well as a link to the university's disclaimer and own privacy statement. Two methods were tested to allow students access to a single on-line survey. In the first method, a Web site address was distributed along with single-use user identifications and passwords to each student who provided a consent form. Passwords and user IDs were not linked to particular individuals. The second method involved e-mailing a hotlink to students' preferred e-mails (obtained on the consent form) with a hotlink to the survey. In total, the on-line survey was completed by 21 students.

To build our on-line survey, the first author used a Web-based polling software, called Apollo, designed by the Australian National University. [1] No technical problems were encountered with the Apollo software during the survey period. Apollo has a number of features:

- No specific expertise is required to use the software, allowing researchers to build a survey without significant technical assistance.
- A range of security options are offered, including single-use user IDs and passwords.
- The software can accommodate a large number of survey participants.
- Questions can be tagged as mandatory so they must be answered before moving to the next page.
- A variety of answer formats are acceptable, including multiple choice, open ended, preference lists, and dates.
- A comments box can be inserted to record participants' additional thoughts.
- The date and time and the length of time taken to complete the survey are recorded.
- Researchers can perform basic analyses of the data.
- Data can be directly downloaded into SPSS and other formats.
- Individual surveys can be exported to Rich Text Format and XML.

Advantages of the on-line survey

The on-line survey format enabled a number of enhancements to the existing pencil-and-paper survey:

Eliciting precise answers from students (e.g., more than one response could not be recorded for single-item response formats). The on-line survey enabled us to obtain more precise answers. For example, in the pencil-and-paper surveys, respondents were asked to indicate their gender; a small number of respondents ticked two boxes, male *and* female. In the on-line format, respondents could only choose male *or* female. Moreover, the gender question (and other sociodemographic questions) were mandatory; they had to be answered before moving on. A further example is that in the pencil-and-paper surveys, where answers required respondents to rank their activities (none or very little, some of the time, a lot of the time, most of the time), some students placed ticks on the line between columns, creating responses that were difficult to code. In the on-line survey, students had to make a choice among the answer options, preventing them from indicating a middle position.

Enhanced privacy protections for students as surveys are immediately secured on a password-protected Web site. This is a marked improvement from surveys being administered by teachers and later retrieved by researchers. There is a danger that staff may examine or misplace the completed surveys, or hand them on to the wrong researcher. This latter example happened during the course of the pencil-and-paper surveys where surveys belonging to another university researcher were mistakenly given to the first author. Some schools and school staff do not have the time to properly manage survey retrieval. The advantage of on-line surveys is that they can be Web stored and password protected so that only researchers can access the data. If they wish, researchers can generate paper copies of the on-line surveys in a controlled university environment. A further advantage is that students can choose to complete the survey privately without any teacher or other adult supervising. This is important given the potential for gambling to be a sensitive topic for some participants (see Chambers, 2003).

Minimising pressure on school resources. Teachers do not have to retrieve and store surveys for collection by a researcher; retrieval can occur electronically.

Rapid and accurate data entry. Apollo surveys can be downloaded into SPSS. This process circumvents lengthy data entry and costs to the research budget if data-entry personnel need to be hired.

Facilitating cross-jurisdictional studies. Across Australian states, there are different types of gambling available and different age thresholds attached to the legal use of different types of gambling. For example, there are no poker machines (VLTs) available outside casinos in Western Australia, and in South Australia, adolescents are legally able to purchase scratch tickets at 16, two years earlier than in other states. Given these differences in the gambling environment, there is merit in conducting large comparative surveys of adolescents across a number of state jurisdictions. The potential for on-line surveys to eliminate the need for large multi-sited teams of researchers would facilitate such a process. There would be no need for collection people in the event of conducting a larger survey drawing on a sample from multiple state jurisdictions, as surveys would automatically be sent to a host Web site.

Disadvantages of the on-line survey

Potentially no supervision. As the surveys could be completed at any time, the social context in which students completed the survey could not be controlled or known. This outcome is the downside to the time saved by erasing the need for survey administration. Although students have the advantage of undertaking the survey at a time or location that may be more convenient for them, researchers cannot prevent students from undertaking the survey under less than desirable conditions (e.g., with music playing, friends present) or with other survey participants in the room. Further, there are no researchers available to respond to queries about the on-line survey. From our experience in conducting the pencil-and-paper surveys, this is an important consideration, particularly for younger participants, who tended to consult available researchers more frequently than their older counterparts.

No opportunity for data validity checks at data-entry phase. For the pencil-and-paper surveys, some written comments and visual patterns of responding were useful in identifying the approximately 1 to 1.5% of aberrant responses at the data-entry stage. These included answers appearing over several pages in a series of 'z' patterns. Pencil-and-paper surveys allowed a two-stage data-checking process to occur. The first occurred at the data-entry phase, where response patterns and contradictory responses were tagged, and the second occurred when cross-checking responses using SPSS. It is worth noting that all suspect surveys noted during the data-entry phase were independently highlighted during cross-checking in SPSS without visual inspection of the paper surveys. Statistical identification of aberrant responding (e.g., as indicated by illogical findings such as scored problem gambling items amongst students who did not gamble, or inconsistent responses to semantically similar items) would still be possible for data obtained on-line, but without the capacity to visually inspect the paper survey for other evidence of noncompliance with the survey requirements.

Reduced space for participant commentary. A number of students completing the pencil-and-paper survey wrote messages on or illustrated the surveys and the envelopes provided. These students commented on specific questions that they felt were unnecessary or difficult to understand, and their illustrations may have indicated when they were getting bored. The on-line survey provided one space for commentary at the very end of the survey. Most students wrote nothing in the space provided.

Methodology only effective where students have Internet access. The on-line survey methodology can minimise the involvement of school staff and researchers in survey administration, where the students fill out the on-line survey outside class times. However, in this way, students from low socioeconomic backgrounds have diminished opportunities to complete the survey, as they are less likely to have Internet access at home. Their only Internet access may be at school.

Reduced survey completions. Not all students who returned consent forms and received a user ID and password completed a survey. Only 70% of students returning consent forms completed the on-line survey, despite a reminder e-mail being sent. This raises questions of representativeness. In the case of classroom-based pencil-and-paper surveys, every person who returned a consent form and attended school on the day of the survey completed the survey. It may be worth investigating the reasoning behind student noncompletion of surveys. For instance, it may be that completing a survey is reminiscent of schoolwork or simply that there are more interesting things to do on the Internet than complete a survey about gambling.

Conclusions concerning on-line methodologies

On-line surveys can potentially deliver enormous resource savings for schools and researchers. On-line surveys also afford great protections for students' privacy by allowing them to complete questionnaires privately and by eliminating the possibility of lost surveys or the potential for staff examining the surveys before passing them on to researchers. Such methods also have advantages over telephone interview methods in that the cost is minimal, no call-backs are required, and there is no danger of other people (e.g., parents) overhearing the young person’s responses. In addition, as with computer programs designed to administer telephone surveys, data entry is replaced by direct downloading of survey data into SPSS. On-line methods therefore seem particularly suited to conducting multijurisdictional, national, or international studies because a survey collection person is not required for each location (Fox, Murray, & Warm, 2003).

The main disadvantage was that completion rates for the on-line

method were poor by comparison with pencil-and-paper surveys. Completion rates could be improved in two ways. Firstly, in traditional surveys, incentives (such as money and product vouchers) have been used to improve completion rates. Such initiatives could easily be inserted into the research process, though this does raise issues of resulting data quality (see, e.g., Davern, Rockwood, Sherrod, & Campbell, 2003). Secondly, completion rates could be improved by paying greater attention to the creation of a more visually and technically appealing on-line survey interface. Further, such initiatives could be designed, tested, and modified in conjunction with adolescents. Such efforts to make on-line surveys more appealing are likely important given that participants are solely responsible for completing the on-line survey when neither a teacher nor a researcher is present.

However, in terms of poor completion rates, it is important to bear in mind that those students who returned a completed consent form and received a password and user ID but did not complete an on-line survey were exercising their right to refuse to participate, in the absence of the researcher or teacher. Schools are hierarchical institutions, and the unequal distribution of power that exists between staff and students raises questions about the extent to which genuine consent, relying on a high level of student agency, is possible in school contexts. There is an inherent danger that in basing our research in schools, students may actually feel compelled to consent to participate (Forster, 2003). Students may also wish to participate in surveys during class time because it offers a break in class routine. It is likely that the option of completing on-line surveys away from school staff, and from researchers, is actually a positive outcome for students as it enables them to assume greater control over their ability to consent to participate in research. However, this is not a desirable result for researchers and may require the inclusion of more extensive feedback or reward structures in research so that students receive greater benefits and/or compensation for their time.

From our trial on-line survey, it seems likely that, while suffering from active-consent procedures, on-line methods of administering surveys can indeed ease the pressure on school resources, secure greater participant privacy, and save on data-entry time for researchers. These outcomes are worthy of further testing, particularly in the conduct of comparative large-scale and cross-jurisdictional studies of adolescent gambling. It seems clear from our pilot survey that the conduct of cross-jurisdictional studies of youth gambling can benefit enormously from placing our surveys in cyberspace. Given the reduced participation rates of those students returning a consent form but failing to complete a survey on-line, one option could involve conducting on-line surveys within class periods with teachers supervising. Most Australian schools have computer labs and students have their own e-mail accounts.

From this study, it seems that cyberspace does have benefits for research, but classroom supervision may still be the best way to ensure maximum student participation rates. Nevertheless, it would be useful in future research to conduct a more extensive investigation of the utility of the two different on-line methodologies developed for this pilot study to determine whether such methods could be used to conduct national surveys that avoid disruptions to school routines, as well as significant costs to researchers.

Acknowledgements

We thank Adrian Thompson, DOI Business Solutions, at the Australian National University, for assistance with the Apollo software, and two anonymous reviewers for their thoughtful suggestions on an earlier draft. Any errors remain the responsibility of the authors.

References

Australian Council of Social Services (ACOSS). (1997).
Young people, gambling and the internet. Darlinghurst, Sydney: Australian Council of Social Services.

Australian National University. (2003, January).
Apollo (ANU Polling Online) user guide. Canberra: Australian National University, Corporate Information Services. Retrieved September 22, 2005, from https://apollo.anu.edu.au/default.asp?script=true

Bridwell, A., Ford, G., Ewing, J., & Ferguson, N. (1999, June).
Attitudes regarding active versus passive parental consent in school-based behavioral research. Paper presented at the Annual Convention of the American Psychological Society, Denver, CO.

Chambers, K. (2003, May).
How often do you have sex: Problem gambling as a sensitive topic. Paper presented at the 2003 12th International Congress on Gambling and Risk Taking, Vancouver, British Columbia.

Davern, M., Rockwood, T., Sherrod, R., & Campbell, S. (2003).
Prepaid monetary incentives and data quality in face-to-face interviews. *Public Opinion Quarterly, 67*, 139–147.

Delfabbro, P.H., Lahn, J., & Grabosky, P. (2005).
Adolescent gambling in the ACT. Report prepared for the ACT Gambling and Racing Commission. Canberra, ACT, Australia. Retrieved September 22, 2005, from http://www.gamblingandracing.act.gov.au/

Documents/pdf/AdoGamReport.pdf

Delfabbro, P.H., & Thrupp. L. (2003).
The social determinants of youth gambling in South Australian adolescents. *Journal of Adolescence, 26*, 313–330.

Derevensky, J., & Gupta, R. (2001).
Lottery ticket purchases by adolescents: A qualitative and quantitative examination. Toronto: Ontario Ministry of Health and Long-Term Care.

Derevensky, J., Gupta, R., & Winters, K. (2003).
Prevalence rates of youth gambling problems: Are the current rates inflated? Journal of Gambling Studies, 19, 405–425. Forster, P. (2003). Ethical pitfalls and political perils of classroom-based research. *Issues in Educational Research, 13*, 1–7.

Fox, J., Murray, C., & Warm, A. (2003).
Conducting research using web-based questionnaires: Practical, methodological, and ethical considerations. *International Journal of Social Research Methodology, 6*, 167–180.

Haggerty, K. (2004).
Ethics creep: Governing social science research in the name of ethics. *Qualitative Sociology 27* (4), 391–420.

Johnson, K. (2000).
Research ethics and children. *Curriculum Perspectives, 20*, 6–7.

Ladouceur, R., Bouchard, C., Rheaume, N., Jacques, C., Ferland, F., Leblond, J., et al. (2000).
Is the SOGS an accurate measure of pathological gambling among children, adolescents and adults? *Journal of Gambling Studies, 16*, 1–21.

McGowan, V. (2004).
How do we know what we know? Epistemic tensions in social and cultural research on gambling 1980–2000. *Journal of Gambling Issues, 11*. Retrieved September 22, 2005, from http://www.camh.net/egambling/archive/pdf/JGI-issue11/JGI-Issue11-mcgowan.pdf

McPhee, J., & Canham, R. (2002).
Understanding the school culture: Guidelines for conducting gambling research in secondary schools. *Electronic Journal of Gambling Issues: eGambling, 7*. Retrieved September 22, 2005, from http://www.camh.net/egambling/issue7/research/

school_culture.html

Moore, S. & Ohtsuka, K. (1997).
Gambling activities of young Australians: Developing a model of behaviour. *Journal of Gambling Studies, 13*, 207–236.

Moore, S., & Ohtsuka, K. (2000).
The structure of young people's leisure and their gambling behaviour. *Behaviour Change, 17*, 167–177.

National Health and Medical Research Council (1999).
National statement on ethical conduct in research involving humans. Canberra: AusInfo.

Victorian Department of Human Services (1999, April).
The impacts of gambling on adolescents and children. Melbourne: Department of Human Services. Retrieved September 22, 2005, from http://www.problemgambling.vic.gov.au/researchdata/documents/dhs_pg_impactadolescent.pdf

Wiebe, J., & Falkowski-Ham, A. (2003).
Understanding the audience: The key to preventing youth gambling problems. Toronto: Responsible Gambling Council.

Wood, R., & Griffiths, M. (2002).
Adolescent perceptions of the National Lottery and scratchcards: A qualitative study using group interviews. *Journal of Adolescence, 25*, 655–68.

Manuscript history: Submitted January 27, 2005; accepted June 7, 2005. All URLs were available at the time of submission. This article was peer-reviewed.

For correspondence: Dr Julie Lahn, LPO Box 8279, Australian National University, Canberra, ACT, 2601, Australia. E-mail: julie.lahn@hotmail.com

Contributors: JL is a co-researcher attached to the Adolescent Gambling project. She is the primary author of this paper. She transferred the project survey into an on-line format and administered the survey to school students. PD is one of two chief investigators on the Adolescent Gambling project. He designed the survey and is the originator of the idea to test an on-line format to compare it with the paper format. PG is the second of two chief investigators on the Adolescent Gambling project. He engaged in all discussions concerning the design, implementation, and results of the trial.

Competing interests: None declared.

Ethics approval: Human Research Ethics Committee, The Australian National University, gave ethics approval for the study "Adolescent gambling: Prevalence, risk factors and opportunities for controls and interventions" on June 27, 2003 and November 4, 2003.

Funding: PG and JL are employed by the Australian National University. PD is employed by the University of Adelaide. PG and PD were awarded funding for the project by The Australian Research Council and the Australian Capital Territory's Gambling and Racing Commission (LPO348759).

Julie Lahn, PhD, is a researcher in the Centre for Gambling Research, Regulatory Institutions Network (RegNet) at the Australian National University, Canberra. She holds a PhD in sociocultural anthropology and her interests lie in the application of ethnographic and other qualitative research methods to the study of gambling as an intercultural social practice. She has contributed to Australian gambling-related research in relation to offenders and, most recently, with adolescents, with Dr Paul Delfabbro and Professor Peter Grabosky.

Paul Delfabbro, PhD, is a senior lecturer in the Department of Psychology, University of Adelaide, South Australia, teaching statistics, social psychology, language development, and learning theory. He has numerous journal articles and conference presentations on gambling-related topics and on adolescent adjustment, foster care, parenting, and methodology. In addition to his gambling prevalence research with adults and adolescents, he has conducted applied experimental studies on irrational thinking in gambling and the application of learning principles to real-life gambling behaviour. He has acted as a consultant on state and federal government projects in Australia, and has been the principal supervisor of postgraduate projects in the area of gambling.

Peter Grabosky, PhD, is a professor in the Regulatory Institutions Network (RegNet) of the Research School of Social Sciences at the Australian National University. He holds a PhD in Political Science from Northwestern University and has written extensively on regulation, public policy, and criminal justice. Professor Grabosky's general interests are in the use of nongovernmental resources in the furtherance of public policy. In 2002, he was appointed to the National Advisory Body on Gambling.

[1] Details about Apollo can be found at https://apollo.anu.edu.au/default.asp?script=true.

issue 16 — april 2006

Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI.* To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

brief report

brief report

Underage gambling in Ontario casinos

Edward Adlaf, Angela Paglia-Boak, & Anca Ialomiteanu,
Centre for Addiction and Mental Health, Toronto,
Ontario, Canada. E-mail: Edward_Adlaf@camh.net

Abstract

This study describes self-reported attendance in an Ontario casino among Ontario students aged 18 and under in 2005 and describes changes in attendance compared to 2003 and 2001. The results showed that in 2005, 1.0% of underage students, representing some 9,400 students in Ontario, reported gambling at casinos in Ontario, a percentage that remains unchanged compared to 2003 (1.5%) and 2001 (1.4%). These data suggest that only a small percentage of underage students gamble at Ontario casinos, and there is no evidence that this percentage has changed significantly since 2001. **Key words**: underage gambling, youth, casino attendance

Introduction

With the expansion of legalized gambling, one issue of policy control is restricting youth access. One indicator of youth access to gambling is underage attendance at casinos. In Ontario, it is illegal for youth under the age of 19 to be in gambling areas of a casino. This brief report describes self-reported casino attendance in Ontario among Ontario students aged 18 and under in 2005 and describes changes in attendance compared to 2003 and 2001.

The Ontario Student Drug Use Survey (OSDUS) is an Ontario-wide survey of elementary (grades 7 and 8) and secondary (grades 9 to 12) school students conducted every 2 years since 1977. The 2005 survey, which used a stratified (region) two-stage cluster design (school, class), included 7,726 students in grades 7 to 12 from 42 school boards, 137 schools, and 445 classes. The 2003 survey

interviewed 6,616 students from 126 schools and 383 classrooms and the 2001 survey interviewed 4,211 students from 106 schools and 272 classrooms. Self-administered questionnaires were distributed in the classroom by staff from the Institute for Social Research, York University, between January and June. Student participation rates were 72% in 2005, 72% in 2003, and 71% in 2001; school participation rates were 95% in 2005, 88% in 2003, and 74% in 2001.

Since 2001, the OSDUS has asked students, "How often (if ever) in the last 12 months have you bet money at a casino in Ontario?" Open-ended count responses were recoded to indicate the percentage that reported one or more betting occasions. In each survey, this question was asked of a random half-sample of students, resulting in 1,943 in 2001, 3,283 in 2003, and 3,965 in 2005. All survey estimates were weighted, and variance and statistical tests were corrected for the sampling design.

In 2005, 1.0% of underage students, representing some 9,400 students in Ontario, reported gambling at casinos in Ontario, a percentage that remains unchanged compared to 2003 (1.5%) and 2001 (1.4%) (Table 1). Males were significantly more likely than females to report casino gambling in 2001 (2.3% vs. 0.6%; $p = 0.002$) and 2003 (2.3% vs. 0.9%; $p = 0.001$), but not in 2005 (1.4% vs. 0.5%; $p = 0.054$). Similarly, students aged 16 to 18 years were significantly more likely than those aged under 16 to report casino gambling in 2001 (2.4% vs. 0.9%; $p = 0.025$) and 2003 (2.5% vs. 0.8%; $p = 0.002$), but not in 2005 (1.4% vs. 0.7%; $p = 0.123$). Although the 2005 estimates for sex and age groups were somewhat lower compared to earlier years, these differences were all within sampling error and thus were not significant.

We must recognize that these data are based on self-reports and are likely underreported by some degree. As well, without qualitative interviews, we cannot know the precise definition of "casino" used by students, which could include formal operations or community "Casino Nights." Still, it is likely that such reporting issues would be constant across years. Of course, these data exclude underage casino attendance by adolescents not enrolled in school. In summary, these data suggest that only a small percentage of underage students gamble at Ontario casinos, and there is no evidence that this percentage has changed significantly since 2001.

Table 1
Percentage of Ontario students aged 18 and under who reported gambling in Ontario casinos within the past 12 months

	2001		2003		2005	
	(*n* = 1,943) %	(95% CI)	(*n* = 3,283) %	(95% CI)	(*n* = 3,965) %	(95% CI)
Total	1.4	(0.9, 2.1)	1.5	(1.1, 2.1)	1.0	(0.5, 1.9)
Males	2.3	(1.4, 3.7)	2.3	(1.6, 3.4)	1.4	(0.6, 3.4)
Females	0.6	(0.3, 1.2)	0.7	(0.5, 1.5)	0.5	(0.2, 1.0)
15 or under	0.7	(0.5, 1.6)	0.8	(0.5, 1.6)	0.7	(0.2, 2.0)
16–18	2.4	(1.3, 4.2)	2.5	(1.8, 3.6)	1.3	(0.8, 2.3)

Manuscript history: Submitted July 12, 2005; accepted: February 22, 2006. This article was peer-reviewed.

For correspondence: Edward M. Adlaf, PhD, Centre for Addiction and Mental Health, 33 Russell Street, Toronto, Ontario, Canada M5S 2S1. Phone: (416) 535-8501, x4506; fax: (416) 595-6899; e-mail: Edward_Adlaf@camh.net

Competing interests: None declared.

Contributors: EA, APB, and AI worked equally on data analysis and writing this report.

Ethical approval: In 2004 by the Centre for Addiction and Mental Health Research Ethics Board

Funding: EA, APB, and AI are employed at the Centre for Addiction and Mental Health.

Edward Adlaf (PhD) is a research scientist and head of the Population and Life Course Studies Unit at the Centre for Addiction and Mental Health (CAMH). Ed holds an appointment as associate professor in the Departments of Public Health Sciences and Psychiatry, Faculty of Medicine, University of Toronto, where he teaches survey methods. He has published widely in the area of alcohol and other drug use, including epidemiology, advanced statistical techniques, and methodological investigations, and currently serves as an assistant editor for the journal Addiction. He has also served as a consultant to international organizations such as the Pan American Health Organization, the World Health Organization, and the United Nations, and the governments of

Canada, the Bahamas, Mexico, and the Cayman Islands, and he is currently coordinating a Global Audit of Student Drug Use for the United Nations Office on Drugs and Crime.

Angela Paglia-Boak is a research coordinator at CAMH. Angela obtained her master of arts in psychology from York University. During the past 9 years, Angela has been responsible for coordinating the Ontario Student Drug Use Survey, the longest ongoing school survey in Canada, which, among other things, monitors gambling behaviours and problems among Ontario students.

Anca Ialomiteanu is a research coordinator at CAMH. Anca obtained her master of arts from the University of Bucharest, Romania. During the past 7 years, Anca has coordinated the CAMH Monitor, which follows gambling behaviours and problems among Ontario adults, and more recently the 2004 Canadian Addiction Survey.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

clinical corner

Welcome back to the **Clinical corner**. This section focuses on difficult situations that clinicians face when dealing with individuals suffering from pathological gambling. Sample composite cases will be presented to illustrate important points in conceptualizing how concurrent mental health factors interplay with the symptoms of pathological gambling. In some cases, the focus will be on a clinical condition, such as attention deficit hyperactivity disorder, or a therapeutic approach, such as mindfulness therapy. We invite readers to e-mail the editor (Phil_Lange@camh.net) to suggest future topics or to submit a clinical case for publication. All cases and materials presented in this section are peer-reviewed.

The case of the bleak blackjack bettor: Clinical depression and pathological gambling

Bruce Ballon, Centre for Addiction and Mental Health, Toronto, Ontario, Canada.
E-mail: Bruce_Ballon@camh.net

Case presentation

Mr. B is a 28-year-old single Asian male with no children. He is an only child and lives with his mother. His father committed suicide 15 years ago when Mr. B was 13 years old. Mr. B finished high school and completed one year of a three-year bachelor of arts degree before dropping out of academics because he felt "sad and directionless." He is currently supported by his mother but does odd jobs for family friends. He declared bankruptcy last year after racking up gambling debts of $60,000. Mr. B has been a regular at his local casino, where he has played blackjack for the last six years, which has overtaken most of his life. He has been unable to stop gambling despite his best efforts. He had been chasing his loses with increased betting, which resulted in his financial situation. Mr. B has great shame over this, especially after borrowing money from his mother for food.

Ever since his recent bankruptcy, Mr. B has been feeling sad and racked with guilt over his gambling. Three months ago, he began to tell his mother that he sometimes thinks about "ending it all." Feeling concerned, his mother brought him to her family doctor. After hearing about the current situation, the family doctor told Mr. B, "Stop gambling and you'll feel better," and sent him home.

Starting about two months ago, he found that gambling no longer brought him any pleasure, although gambling used to help him deal with stress and sad emotions. His motivation to look for work and maintain his hygiene dropped and he began to isolate himself at home. His mother would find Mr. B crying throughout the day. He barely ate and his mother watched him slowly waste away. Mr. B found he couldn't sleep well and would wake up in the mornings with a feeling of hopelessness about his future.

One month ago, Mr. B took an overdose of benzodiazepines and antidepressant medication he found in his mother's medicine drawer. His mother found him unconscious at home and called for an ambulance. Luckily, Mr. B was able to be medically stabilized, and was then admitted for psychiatric observation. The psychiatrists at the hospital determined that Mr. B was suffering from a major depressive episode (MDE) and started him on an antidepressant. They verified that he had no substance use disorders (such as alcohol dependence). He was kept in hospital for three weeks and was released to follow-up with his family doctor once his mood had stabilized. Before he left, he asked the psychiatrist how he could get help for his gambling. The psychiatrist told him, "Don't worry—you were likely gambling as a coping mechanism for dealing with depression. Just keep taking the medication and things will be fine."

Within a week, Mr. B had returned to the casino and begun to gamble again. This led to more financial losses, and two weeks later he quit taking his medication, feeling that it did not help him. He quickly began to get into dark moods and was having suicidal thoughts, and thus returned on his own to the hospital emergency room.

- What aspects of this case raise concern over the assessment and treatment of Mr. B?
- What additional information do you need to determine a treatment plan?

- What further complications could arise if the treatment plan remains the same?

Depressive disorders

In any given one-year period, at least one in six Canadians will suffer from major depression (Weissman et al., 1996). The social cost of this condition is high, but the cost in human suffering cannot be estimated. Depressive illnesses often disable functioning and cause pain and suffering not only to those who have the disorder but also to those who care about them. Most people with a depressive illness do not seek treatment. This is often due to stigma (people thinking that the person is "lazy," that it's "just their personality," or that they're "just faking"). Certain cultural factors can also come into play; e.g., some Asian cultures see mental illness as something that must be kept secret, as it would be shameful for a family to have this discovered.

A depressive disorder is an illness that has physical, emotional, and cognitive impacts. Unless one has suffered from this illness, one cannot appreciate what it truly feels like. Clinical depression is an abnormal mood state; it is not just extreme sadness. People feel very different from usual, describing depression as a qualitatively different experience from extreme sadness, e.g., feeling shot through with lead, living in hell, or feeling their insides rotting. It can rob people of feeling any pleasure in life and fill them with guilt; hopelessness; decreased energy, coupled with loss of motivation, resulting in an inability to perform basic daily functions; and suicidal thoughts as well as attempts. It affects the way a person eats and sleeps by either causing loss of appetite and sleep (melancholia) or the opposite (increased eating and increased hours of sleep). It is not a sign of personal weakness, or a condition that can be willed or wished away. One cannot "snap out of it." Without treatment, symptoms can last for weeks to years.

Depressive disorders include the following:

- **Major depressive disorder**: A person has recurrent MDEs (*Diagnostic and Statistical Manual of Mental Disorders* (Rev. 4th ed.) (APA, 2000)). (See the DSM-IV-TR symptoms and signs of an MDE in Table 1.) Such a disabling episode of depression may occur only once but more commonly occurs several times in a lifetime.

- **Dysthymia**: A person has long-term chronic symptoms that do not disable as much as an MDE, but keep one from functioning well or from feeling good. Many people with dysthymia also experience MDEs at some time in their lives (which one would then call "double depression"—dysthymia

with recurrent MDEs).

- **Bipolar disorder**: This is also called manic-depressive illness (see the first Clinical Corner (Ballon, 2005)); a person has a combination of manic episodes and MDEs.

There are different specifiers for the conditions (e.g., with psychosis, melancholic features, etc.), but these details are not needed for the purpose of this article. (Those interested can find them all listed in the DSM-IV-TR.)

Causes of depression are numerous. Often, a combination of genetic, psychological, and environmental factors is involved in the onset of a depressive disorder. For a full account of depressive illness, see http://www.psychdirect.com/depression/d-resources.htm.

The first step to getting appropriate treatment for depression is a physical examination by a physician. Certain medications as well as some medical conditions can cause the same symptoms as depression. A good diagnostic evaluation will include a complete history of symptoms. The doctor should ask about alcohol and drug use (many substances can induce depressive symptoms) and whether the patient has thoughts about death or suicide. Further, a history should include questions about whether other family members have had a depressive illness and, if they were treated, what treatments they may have received and which were effective.

Treatment choice will depend on the outcome of the evaluation. There are a variety of antidepressant medications and psychotherapies that can be used to treat depressive disorders. Depending on the patient's diagnosis and severity of symptoms, the therapist may prescribe medication and/or one of the several forms of psychotherapy that have proven effective for depression. Electroconvulsive therapy (ECT) is useful, particularly for individuals whose depression is severe or life threatening or who cannot take antidepressant medication (CPA and CANMAT Depression Work Group, 2001).

Patients are often tempted to stop medication too soon. They may feel better and think they no longer need the medication. Or they may think the medication isn't helping. Once the individual is feeling better, it is important to continue the medication for at least four to nine months to prevent a recurrence of the depression. For individuals with bipolar disorder or chronic major depression, medication may have to be maintained indefinitely. Antidepressant drugs are not addictive. However, as is the case with any type of medication prescribed for more than a few days, antidepressants have to be carefully monitored to see if the correct dosage is being

given. The prescribing doctor (GP, family doctor, or psychiatrist) will regularly check the dosage and its effectiveness.

Two of the short-term psychotherapies that research has shown to be helpful for some forms of depression are interpersonal therapies and cognitive/behavioural therapies (CBTs). Interpersonal therapists focus on the patient's disturbed personal relationships, which both cause and exacerbate (or increase) the depression. Cognitive/behavioural therapists help patients change the negative styles of thinking and behaving often associated with depression.

Table 1
Major depressive episode DSM-IV-TR criteria

A) Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

1) depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood.

2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)

3) significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains.

4) insomnia or hypersomnia nearly every day

5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)

6) fatigue or loss of energy nearly every day

7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)

8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)

9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B) The symptoms do not meet criteria for a Mixed Episode

C) The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning

D) The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism)

E) The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation (DSM-IV-TR, 2000).

Pathological gambling and depression

As we already know, pathological gambling often co-occurs with other mental health and addiction issues, especially depression (Specker, Carlson, Edmonson, Johnson, & Marcotte, 1996; Petry, 2001). A major depressive disorder is likely to occur in 76% of pathological gamblers, with recurrent depressive episodes likely to occur in 28% of pathological gamblers (Becoña, 1996). Pathological gamblers have increased rates of suicide and suicidal ideation, and an increased number of negative life events and increased severity of self-reported depressive symptoms (Bourget, Ward, & Gagné, 2003; Newman & Thompson, 2003; Maccallum & Blaszczynski, 2003). Gamblers reporting suicidal ideation were more likely to be depressed than nonsuicidal pathological gamblers and did not report more gambling problems. It is thus important for clinicians always to screen for depression and suicide risk when dealing with someone suffering from pathological gambling.

There are a few hypotheses on the question, "which comes first?" (i.e., gambling or depression), to link the two conditions. One is that pathological gamblers find that the escape from stress and the excitement and stimulation related to these activities alleviate negative mood. Others contend that gambling behaviours are used to fend off a severe or impending depression. Others hypothesize that gambling induces depression instead of depression leading to gambling problems.

Like all conditions in psychiatry, most disorders are heterogeneous; i.e., one person's mood and gambling problems might meet the same criteria for diagnosis, yet the manifestation and factors associated with them might be completely different. The clinician would do better to assume that the two disorders are combined and interacting with each other—and both need to be treated simultaneously!

As for "snapping out of it"—clinical depression and pathological gambling are both essentially chronic illnesses. If it were possible to "snap out of it," a person would! Clinicians need to understand the multifactorial nature of these conditions and to provide appropriate treatment, thereby allowing a person to evaluate his or her situation, make healthy decisions, and deal with his or her conditions. This may take some time and usually requires matching treatment intensity to the intensity of the condition. Misunderstanding the chronic nature of depression and pathological gambling often leads to poor, uncoordinated treatment and to stigmatizing the person, who is seen stereotypically as being solely to blame for not getting "better." Instead, it is vital to realize that the system needs to provide the care suitable to a chronic disorder.

As assessment and treatment continue, it becomes clearer how clinical depression and pathological gambling are linked for any given individual. Treatment can then be adjusted accordingly.

Four possible scenarios for concurrent depressive and gambling symptoms are:

1. clinical depression leading to pathological gambling,
2. pathological gambling leading to clinical depression,
3. both conditions occurring because of an underlying third cause (e.g., trauma issues), and,
4. none of the above.

Possibility 1. Clinical depression leading to pathological gambling

One can lean to this option when the person has a history of MDEs before the gambling behaviour ever started and/or a family history of depression or suicidal behaviours. Even if this history cannot be obtained, if the person has clear mood dips into depression despite the continuation of the gambling behaviours at a fairly constant rate, this again suggests a preexisting MDE. Often, gambling begins as a maladaptive coping mechanism to deal with the horrible emotions felt by the individual. However, once a person begins to engage in gambling at a pathological level, he or she has now developed a new condition that needs treatment and that usually does not go away just because the depression has been treated. Pathological gambling may be maintained by psychosocial factors (and perhaps an underlying common factor in some cases; see Possibility 3, below). The person would require concurrent treatment of both conditions. In Mr. B's case, there seems to be a history of depressive symptoms (dropping out of university) before gambling behaviours emerged, as well as a family history (his father's suicide). In addition, focusing on only one condition at a time allowed the other condition to go unabated, resulting in relapses of both conditions for Mr. B. The clinician needs to get an understanding of the person's behaviours and symptoms inside and outside the gambling context.

Possibility 2. Pathological gambling leading to clinical depression

The gambler's affects and moods can be variable but are usually reactive to situations, e.g., feeling joyous while playing, ecstatic when winning, anxious when losing, and depressed when in debt. However, someone under enough stress and with the right amount of genetic vulnerability could develop an MDE. Not everyone who is a pathological gambler will develop an MDE from the consequences of his or her actions—although he or she might develop an "adjustment reaction disorder" (basically, a time-limited condition that develops in people due to the impact of a large stressor). However, it is a mistake for a clinician to jump to the conclusion that a person is only adjusting to the sequelae of his or her actions, and that once the gambling is treated the depression will go away. The key message to remember is that, if a person still meets the criteria for an MDE, then *that person needs to be treated for it as well*! If not, the clinical depression will likely interfere with the therapy for the gambling.

It should be noted that CBT can be used for both conditions (the pathological gambling and the resulting clinical depression). If a person cannot engage in therapy because he or she is too depressed, one should consider offering the person an

antidepressant; it won't suddenly make the situation better, but it will allow the person to engage in the needed therapy to help cope with gambling and depression. Mr. B may have intensified the depressive symptoms he already had by using gambling to cope with his symptoms, which eventually worsened when he lost at the casino. It might also be the case that he had subclinical symptoms of an MDE (e.g., dysthymia), and once he declared bankruptcy, the stress may have interacted with an underlying vulnerability for him to develop a full-blown MDE.

Note that double depression is where a person suffers from ongoing dysthymia and has a breakthrough MDE as well. These individuals often require more intense psychological, social, and biological treatments to effect symptom remission. Also, as we see that depression and pathological gambling often intertwine, double depression should have the clinician's warning bells ringing to investigate if gambling (or another maladaptive behaviour) is present.

Possibility 3. Pathological gambling and clinical depression arising from an underlying common factor

Sometimes an underlying condition may be the root of a variety of other clinical syndromes. Researchers are still investigating if there may be some genetic/biological factors, which raise the risk that a person may develop both clinical depression and pathological gambling. One group that clinicians commonly encounter are people with a trauma history. Often, physical, sexual, or emotional abuse affects a person's ability to regulate affect, maintain self-esteem, or self-sooth in an adaptive, healthy way. Instead, the person develops depressive symptoms and mood instability. These symptoms are often dealt with by using maladaptive coping mechanisms to help numb the person emotionally or to block "flashbacks." Developing substance use disorders or pathological gambling problems in this manner is common. It is again important to note that, in this particular group, dealing with the trauma alone won't suddenly eliminate the pathological gambling or mood disorders. In fact, it usually makes them worse. The person needs to be stabilized by *concurrent* treatment that addresses the mood and gambling problems and provides new coping skills to deal with dysphoric moods. Were such a person to engage in trauma therapy alone, he or she would almost certainly become retraumatized, and would quickly revert to using his or her usual maladaptive coping mechanisms to self-sooth. In the case of Mr. B, no information on his developmental history has been obtained as yet, so a trauma history cannot be ruled out. For example, we are not sure what the circumstances of his father's suicide were; e.g., did Mr. B witness it, or find the body?

Possibility 4. None of the above

Although unlikely, it is possible that the two conditions arose *de novo* (i.e., the person started gambling and developed pathological behaviours in between MDEs). However, it is hard to imagine that the two conditions would not interact once both developed. There is also a chance that the person is malingering for secondary gain (e.g., a psychopath wanting to avoid paying debts). Also, as mentioned above, a person may develop an adjustment reaction to the sequelae of gambling instead of a full MDE. Adjustment reactions need to be dealt with concurrently as well, but often will require supportive therapy as opposed to medications. In the case of Mr. B, none of these scenarios seems likely.

What do we need to know?

As always, context and time lines are key. The clinician needs to know at least the following:

- mood symptoms inside and outside the gambling environment
- onset and pattern of gambling and psychiatric symptoms, and how they relate to each other temporally (it helps to draw this out as a chart); can include developmental history, periods of abstinence, etc.;
- developmental history (abuse, a serious major life event, or other family factors);
- family history of mental health issues, e.g., mood disorders, anxiety disorders, gambling problems, addiction problems, etc.;
- substance use disorders, other psychiatric conditions, and medical conditions (either ruled out or, if present, put into the temporal relationship chart).

The case revisited

Mr. B seems to be suffering from concurrent major depressive disorder and pathological gambling. It appears that the depression may have come first, judging by his history and family background. The precipitating factor for Mr. B developing a full MDE seems to be his recent bankruptcy. However, it is still unclear if there are deeper issues such as trauma that may underlie these conditions. It is also worth exploring if cultural factors are interfering with Mr. B's treatment. (Being Asian, does he perceive mental illness as shaming himself and his family, and is he thus reluctant to engage

in ongoing care, let alone accept that he may have clinical depression?) Even without cultural factors, many people stop their medications if they cause side effects or make them feel "cured." Someone will need to discuss treatment compliance with Mr. B. However, his treatment plan has been hindered because his various caregivers are treating each of his conditions in isolation, and are not in communication with each other. This has led to relapses of both conditions. His treatment plan should be tailored for concurrent treatment whenever a possible therapy may help both conditions (e.g., CBT, Gamblers Anonymous, or a harm-reduction approach). Exploration of Mr. B's cultural issues, family psychiatric background, and emotional state from social factors (e.g., the shame feelings he endorsed originally) is essential for a proper understanding of this situation. For the treatment providers, Mr. B's case should illustrate the need to understand the true nature of pathological gambling and depressive disorders.

Final thoughts

- Concurrent disorders require concurrent treatment.
- Chronic conditions such as pathological gambling and major depressive disorder will require chronic care, matching treatment intensity to the person's intensity of need.
- Depressive symptoms in the context of pathological gambling are often judged as merely the just consequences of the gambler's actions. If a person has met criteria for an MDE, his or her depressive symptoms should be treated as an MDE.
- Gambling behaviours can sometimes be thought of as only a maladaptive coping mechanism a person uses to self-treat depressive symptoms. This is often jumping to conclusions and can gravely affect the treatment outcome.
- Clinicians need to be aware of the presentation and manifestation of pathological gambling and mood disorders to provide the proper assessment and treatment plans.

References

American Psychiatric Association. (2000).
Diagnostic and statistical manual of mental disorders (Rev. 4th ed.). Washington, DC: Author.

Ballon, B. (2005).
The case of the sleepless slot-machine supplicant: Bipolar disorder and pathological gambling. *Journal of Gambling Issues, 14*. Retrieved January 26, 2006, from

http://www.camh.net/egambling/issue14/jgi_14_ballon.html

Becoña, E., Del Carmen Lorenzo, M., & Fuentes, M.J. (1996). Pathological gambling and depression. *Psychological Reports, 78*, 635–640.

Bourget, D., Ward, H., & Gagné, P. (2003, December). Characteristics of 75 gambling-related suicides in Quebec. *The Bulletin*, Canadian Psychiatric Association.

Canadian Psychiatric Association and the CANMAT Depression Work Group (2001). Clinical practice guidelines for the treatment of depressive disorders. *Canadian Journal of Psychiatry, 46* (Suppl. 1), S13–S89.

Maccallum, F., & Blaszczynski, A. (2003). Pathological gambling and suicidality: An analysis of severity and lethality. *Suicide and Life-Threatening Behaviour, 33*, 88.

Newman, S., & Thompson, A. (2003). A population-based study of the association between pathological gambling and attempted suicide. *Suicide and Life-Threatening Behaviour, 33*, 80–87.

Petry, N. (2001). Psychiatric symptoms in problem gambling, and impulsiveness. *Drug and Alcohol Dependence, 63*, 29–38.

Specker, S., Carlson, G., Edmonson, K., Johnson, P., & Marcotte, M. (1996). Psychopathology in pathological gamblers seeking treatment. *Journal of Gambling Studies, 12*, 67–81.

Weissman, M., Bland, R., Canino, G., Faravelli, C., Greenwald, S., Hwu, H., et al. (1996). Cross-national epidemiology of major depression and bipolar disorder. *Journal of the American Medical Association, 276*, 293–299.

Manuscript history: Submitted: August 2, 2005. All URLs were available at the time of submission. Accepted: January 25, 2006. This article was peer-reviewed.

For correspondence: Bruce Ballon, BSc, MD FRCP(C), Centre for Addiction and Mental Health, 33 Russell Street, Toronto, Ontario, Canada M5S 2S1. E-mail: Bruce_Ballon@camh.net.

Competing interests: None declared.

Ethical approval: Not required.

Funding: Does not apply.

Bruce Ballon (BSc, MD FRCP(C)) is a psychiatrist at the Centre for Addiction and Mental Health (CAMH) in Toronto, an assistant professor in the University of Toronto's Faculty of Medicine, and assistant professor of psychiatry and addiction psychiatry education coordinator at the University of Toronto. He is a clinical education specialist and consulting psychiatrist to the problem gambling, youth addiction, and concurrent disorder services at CAMH. His training includes a BSc (genetics) and an MD (psychiatry specialist degree and two fellowships: child and adolescent psychiatry and addiction psychiatry). Dr. Ballon has received numerous awards for his work in psychotherapy, education, and the humanities, and for his writing. He has a special interest in different forms of media and their relationship with addiction and mental health issues. He has designed a variety of novel psychoeducational and therapy initiatives involving the use of film, television, the Internet, creative writing, and art.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

opinion

Clarifying the at-risk label: A commentary

Blasé Gambino, Boston, Massachusetts, U.S.A.
E-mail: Blasegambinophd@aol.com

Abstract

The at-risk concept is described and its use in the literature on pathological gambling is discussed. An epidemiologic perspective is proposed and the use of *risk*, *at-risk*, and *not-at-risk* are discussed within this framework. It is shown that within the epidemiologic framework the concept of risk applies to nongamblers as well as gamblers, and some nongamblers are theoretically at risk. An example of the application of risk is provided within the context of smoking and the meaning of risk. The frequent assignment of gamblers with scores of 1 or 2 into the same category as those who score 0 is viewed as problematic and is discussed in terms of true negatives and false negatives and the likelihood of pathological gambling among these gamblers. The need for researchers to identify the determinants and indicators of risk is stressed. **Key words**: risk, at-risk, not-at-risk, false negatives, true negatives, severity, symptom assessment, nongamblers

Appearances to the mind are of four kinds.
Things either are what they appear to be; [true positives][1]
or they neither are, nor appear to be; [true negatives]
or they are, and do not appear to be; [false negatives]
or they are not, yet appear to be. [false positives]

Rightly to aim in all these cases is the wise man's task.

Epictetus, 2nd century A.D.[2]

Introduction

The use by researchers in a number of disciplines of the term *at risk* has a long history and recent times have seen a resurgence of this usage in the medical, economic, psychological, and

educational literature (Schonert-Reichl, 2000). This is true for the study of pathological gambling as well, with the added dimension of hyphenation, that is, *at-risk* (Shaffer & Kidman, 2004).

The concept of *at risk* when applied to public health and mental health clearly takes on its strongest meaning in the context of prevention (Derevensky, Gupta, & Dickson, 2004). Its meaning in the study of pathological gambling has rarely been within this prevention context; more frequently it has been applied in the context of prognosis or natural history (Winters, Stinchfield, Botzet, & Anderson, 2002).

Risk refers to something that will occur in the future and *at risk* essentially implies that those so labeled are more likely than others to experience the event, for example, the onset of pathological gambling. The general meaning of the term at *risk* is to refer to someone who is likely to encounter serious problems at some future date conditional on the presence or absence of theorized or empirically validated risk and protective factors and their interaction (Messerlian, Derevensky, & Gupta, 2005). Risk factors and protective factors are two sides of the same coin with respect to risk. Risk factors increase risk, whereas protective factors reduce risk. The origins of the term *at risk* are unclear, but at least in medicine its roots can be traced to epidemiologic practice (Garmezy, 1994).

Its use in the gambling literature has often been ambiguous and simply wrong at worst. Even when used properly, its justification is weak; typically the application of at-risk is based on score levels. In general, the *at-risk* label has been applied to those gamblers who score positive on one or more symptoms but fail to meet the criterion for classification as pathological gamblers. As an aside, a number of other categorical labels have been applied to this class of gamblers as well. These include, among others, potential pathological, problem, subclinical, in transition, and level-two gamblers. The use of these varied labels has generated some confusion in the literature (Shaffer & Kidman, 2004), but only a few investigators have attempted a systematic criticism or attempted to resolve the issue (Ferris, Wynne, & Single, 1999; National Research Council, 1999; NORC, 1999).

The predominant view of at-risk gambling, at least among adolescents, was perhaps best expressed by Winters et al. (2002). This view holds that those labeled at-risk are less seriously disordered than those at or above the cutoff score, but are at increased risk, relative to those who score 0, of developing a more serious problem (Winters et al., 2002). The latter view assumes that increasing scores represent increasing levels of severity.

Although this view has some merit (Gambino, 2005), it is

insufficient to explain which of those gamblers who score in this range will make the predicted transition from less seriously to more seriously disordered. Further, it ignores the distinction between symptom assessment and the severity dimension itself (Finlayson, Moyer, & Sonnad, 2004). It further implies that the number of symptoms is a straightforward measure of severity, an implication that may not be true. All symptoms, for example, are not equal in severity (Toce-Gerstein, Gerstein, & Volberg, 2003), and severity is not always reflected in the emergence of symptomology (Finlayson et al., 2004).

A more literal interpretation of *at-risk* is that those individuals so labeled are not pathological gamblers at the time of testing but might become so in the future. This interpretation that at-risk gamblers are not pathological gamblers fails to recognize that some gamblers among those labeled at-risk may be false negatives. The four outcomes of testing for the presence or absence of pathological gambling are true positives, true negatives, false negatives, and false positives. The terms *positive* and *negative* by convention refer to meeting or not meeting the criterion score for designating a gambler as pathological or not.

Not meeting criteria is not equivalent to not being a pathological gambler at the time of testing; some pathological gamblers will be missed by setting a cutoff criterion (false negatives). Conversely, meeting criteria is not equivalent to being a pathological gambler; some gamblers who are free of the disorder but score at or above the cutoff will be falsely identified as pathological (false positives).

The decision not to count those who do not meet some arbitrary cutoff score as cases merely represents an analytical choice of convenience (Robins, 1985) and, in fact, raises the question of reporting these at all. One reason is the assumption that these individuals are at risk. This raises a second question: why are they at risk, or, put another way, what has placed these gamblers at risk for progressing to more serious problems or to the status of pathological gambler? A reference to scores alone is insufficient to make the case; additional information is needed.

This additional information requires the identification of those indicators of risk that predict movement between being pathological and not pathological. A common-sense view suggests that to state that someone is at risk implies the further statement that the individual is at risk because of something that places them at risk, for example, parental gambling history (Gambino, Fitzgerald, Shaffer, Renner, & Courtnage, 1993; Winters et al., 2002). Finally, the use of the at-risk label has resulted in the misleading practice of labeling nongamblers as not-at-risk.

Risk as an epidemiologic concept

One approach to clarifying the concept of *at-risk* is to adopt an epidemiologic framework. From this perspective, everyone is at risk for becoming a pathological gambler over the course of a lifetime, including nongamblers. To understand this, recall that risk refers to future events and takes on meaning only in the context of an implied or specified time-line; for example, what is the 1-year, 5-year, . . . … lifetime risk of becoming a pathological gambler? Or, what is the risk of becoming a pathological gambler following the initiation of gambling? It might also be asked what the risk is of a nongambler beginning to gamble.

Drawing upon the epidemiologic literature, risk when applied to the onset of pathological gambling is defined as the average probability of becoming a pathological gambler during a specified interval of time: the period of risk (Schlesselman, 1982). In this sense, risk is inherently a theoretical measure of incidence, where the latter may be defined as the rate of onset of pathological gambling among specified classes of individuals (Miettinen, 1985).

The epidemiologic concept of risk as it is mathematically defined states that risk is represented as a probability such that $0 \leq R^t \leq 1.0$, where R refers to risk and the superscript t represents the measured time period. Employing this definition of risk, everyone is at risk even if that risk can be shown to equal zero as, for example, in the case of gender-specific disorders (Rothman & Greenland, 1998).

In the epidemiologic context, not-at-risk is equivalent to the statement that risk equals zero for this class of individuals (Schlesselman, 1982). It is only in the sense that risk equals zero that the application of not-at-risk to nongamblers is meaningful, but this is rarely, if ever, spelled out. At risk, on the other hand, is defined as a risk greater than zero and, when defined relative to a class of individuals with a low risk, it signifies being at higher risk.

The current assertion that nongamblers are not at risk is not a valid statement in the absence of supportive evidence that relates this class of individuals to the determinants of pathological gambling and an associated time-line. Although nongamblers may be at zero risk of becoming pathological gamblers at the time of testing, it cannot be assumed that they remain at zero risk for becoming pathological gamblers in the absence of a specified future time-line. For example, at least one study has found, using a retrospective measure that the risk of pathological gambling among a sample of nongamblers remained at zero after a period of 5 years (British Columbia, 2003). Additional data of this form are necessary to firm up the relationship between being a nongambler and being at risk

for (a) starting to gamble and (b) becoming a pathological gambler after the onset of gambling.

A second example illustrates the importance of the time-line. Someone who is a nongambler at the time of testing (risk = zero) might later receive a gift certificate for scratch tickets and begin gambling the next day (risk ≥ zero). The goal of the researcher is to quantify risks for eligible populations, for example, classes of individuals who at the start of a study do not display any signs or symptoms of pathological gambling.

The epidemiologic task is to assign a probability value that defines the likelihood of becoming a pathological gambler during the interval of time under study. To repeat, from the perspective of the epidemiologist, to state that individuals in a particular group are at-risk simply implies that the risk of becoming a pathological gambler is greater than zero (Miettinen, 1985). Conversely, to state that a class of individuals such as nongamblers is not-at-risk is to imply that the individual risk among this class is zero.

The relevant issues associated with the use of the risk concept as applied to nongamblers can be illustrated with a common example. Smokers are at risk for developing a number of disorders (including pathological gambling). This does not imply that nonsmokers are not at risk! It merely signifies that smokers are at higher risk than nonsmokers for those disorders for which there is an established empirical association with smoking.

It also implies that if the nonsmoker (nongambler) takes up smoking (gambling), then that individual's risk for developing a disorder will increase accordingly. Similar notions apply to the situation where the smoker stops smoking, and by extension to the gambler who quits gambling. The risk associated with those individuals who quit smoking would then be adjusted downward on the basis of the relevant variables such as age at cessation, years of smoking, frequency of smoking, intensity of smoking (inhale deeply, inhale lightly), and so on.

The application of the smoking versus nonsmoking analogy to gambling simply states that with the onset of gambling, the individual may move from one level of risk (zero) to another (≥ zero). It remains an open question whether the onset of gambling is a risk factor in the sense attributed to smoking. In fact, this is unlikely to be the case and highlights the distinction between the epidemiologic term *risk factor*, suggesting a causal connection, and the more general epidemiologic term *risk indicator*, which refers to any attribute associated with higher risk (Miettinen, 1985). Alternatively, gambling certainly qualifies as a determinant of risk as this term is used by epidemiologists. In modern epidemiology, "a determinant is any factor that affects an outcome — not only the

agent of change but all contributors to outcome . . . " (Susser, 1991, p. 637). Clearly, in the absence of exposure to gambling, pathological gambling will not occur and risk will equal zero during the interval of time under observation.

This is why epidemiologists argue that a more meaningful use of the concept of risk occurs only when it is associated with identifiable indicators of risk and an interval of time (Rothman & Greenland, 1998). What is needed is the ability to make valid statements of the form: gamblers who wager on slot machines have a *P*% greater risk of becoming pathological gamblers in the next *T* years than those who gamble on scratch cards, where *P* lies in the interval between zero and 100 percent; the use of percent terminology (rather than probability) is a convenient and readily understood convention for expressing risk (Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001).

It is also not difficult to show that the application of the at-risk label on the basis of score levels is inappropriate if it is meant to denote those who are not pathological gamblers simply because these gamblers did not meet the criteria. The general practice is to assign the at-risk label to those gamblers who score between 1 and 4; this is often limited further to those who score 3 or 4. To understand why this is inappropriate, it need only be recognized that it is possible to set a criterion of 1 to define cases of pathological gambling!

Note that the selection of scores of 1 as the cutoff does not imply that these gamblers are pathological gamblers. This choice relative to conventional cutoff scores of, for example, 5 or higher, simply implies that the likelihood of false positives is enhanced while the likelihood of false negatives is decreased. It should also be noted that the at-risk assertion as generally used implies that conventional cutoff criteria have a degree of diagnostic certainty that is clearly undeserved (Gambino, 2005).

There are two major weaknesses in the use of cutoff scores in prevalence studies of the general population. The first has been the failure to address the critical question of whether cutoff criteria based on current conventions are related to the clinical significance of the symptomology exhibited by those gamblers who meet the criteria (Kessler, 2002). This reflects in large measure the lack of effort to define the concept of clinical significance (Gambino, 2005) in the context of pathological gambling.

The second is the related failure to examine the association between specific cut-points and clinically relevant outcomes (Clarke & McKenzie, 1994). There has been little effort to date to relate cutoff criteria to meaningful decisions such as to treat or not to treat; the referral of screening outcomes for more intensive

testing; or the allocation of scarce resources for treatment, education, or prevention (Gambino, 2005; Jenkins, 2003).

The missing pathological gambler

One problem that deserves to be highlighted is the current practice in which gamblers with scores of 1 or 2 are generally lumped together with those who score 0. Shaffer and Hall (1996) noted this problem in their analysis of adolescent prevalence rates. These investigators argued properly that it is important to distinguish between symptom-free and symptomatic gamblers. Additionally, those who score 1 or 2 are often labeled as not-at-risk along with those who score 0 or those who report they have never gambled. These three groups are often placed in the same category. This represents a significant loss of information and in the case of those who score between 1 and 2 permits a demonstration of the misuse of the not-at-risk terminology.

It is well established in the medical literature that it is often the case that a single clinical sign or symptom may be a more powerful indicator of the presence of the disorder than the test as a whole (Kendell, 1989; Koch, Capurso, & Llewelyn, 1995). It is unclear at present whether such potent indicators of pathological gambling will occur frequently or at all among this class of gamblers. This requires an evaluation of individual items and their distribution among those who score 1 or 2 on the instrument employed in any specific study.

The argument that a score of 1 or 2 may reflect the presence of pathological gambling is not without empirical merit. A recent study has begun examining the distribution of clinical indicators among those who endorse one or more items and clearly demonstrates the importance of this task. Toce-Gerstein et al. (2003) analyzed the distribution of scores on the DSM-IV and reported that among those who scored 1 or 2, chasing was the most endorsed item. The latter characteristic is considered to be one of the more significant attributes of the pathological gambler (American Psychiatric Association, 1994; Lesieur, 1984; O'Conner & Dickerson, 2003).

A similar analysis has not been conducted for the most popular instrument employed to measure pathological gambling, the South Oaks Gambling Screen (SOGS) (Shaffer, Hall, & Vanderbilt, 1997), but available data indicate that comparable results may be found. For example, the results of a national prevalence study in Australia revealed that among those who scored 1 or 2 on the SOGS (Tremayne, Masterman-Smith, & McMillen, 2001), the most frequent items endorsed were "gambling more than intended" (20.7%) and "felt guilty about gambling" (5.8%). Chasing as defined by the SOGS, however, was endorsed by only 1% of

those who scored 1 or 2, a proportion it should be noted that is roughly equivalent to the average prevalence rates for pathological gambling among adults obtained in the U.S. and abroad (Shaffer, LaBrie, LaPlante, Nelson, & Stanton, 2004).

Analysis of these items by the present author using the likelihood ratio (*LR*) is revealing (Gambino, 2005). The *LR* is defined as sensitivity/(1 − specificity). Sensitivity (the true positive rate of the test) was estimated by the proportion of gamblers who scored 10 or higher and endorsed the specific item, while (1 − specificity) (the false positive rate) was estimated by the proportion who scored 1 or 2 and endorsed the item. This procedure for estimating the true positive and false positive rates to obtain sensitivity and specificity follows a common method of generating empirical estimates of these parameters (Zhou, Obuchowski, & McClish, 2002).

The results from estimating the *LR* reveal that the first item is weakly associated with meeting a strict (minimizing false positives) criterion of 10 (TPR = 100%, FPR = 20.7%, *LR* = 4.8), whereas the second item is strongly related (TPR = 100%, FPR = 5.8%, *LR* = 17.2). The *LR* for chasing was estimated at 66.7 (TPR = 66.7%, FPR = 1.0%), indicating a very strong relationship. According to interpretative guidelines provided by Jaeschke, Guyatt, and Sackett (1994), an *LR* that falls in the range of 2 to 5 represents a small, although sometimes important, association, whereas an *LR* greater than 10 is considered large and often conclusive. These results emphasize that it is a mistake to assume that individuals who score 1 or 2 are equivalent to those who score 0. It should be noted that this method is equivalent to correlating test items with the total test score.

The question of whether those who score between 1 and the cutoff score are at risk for developing more serious problems is not a straightforward proposition, since some gamblers will exhibit fewer symptoms over time (Shaffer & Hall, 2002). The weakness in this assertion lies in the failure to clearly specify the determinants of risk associated with changes in scores over time, as Winters et al. (2002) demonstrated. Which indicators of risk are associated with increasing symptoms and which are associated with decreasing symptoms is an important issue that cannot be resolved on the basis of the evidence to date. In fact, the establishment of validated risk and protective factors would help to clarify the current reliance on score levels to indicate individuals at risk. It should be apparent, for example, that if risk indicators are identified, then some proportion of those who score 0 must be at higher risk than the remaining gamblers in this class who lack the identified attributes of risk, and in theory at least could be at higher risk than some of those who score 1 or 2.

Categorical labels

There is a lack of strong evidence and theoretical rationales for applying different labels: problem versus pathological, level 2 versus level 3, probable versus potential, subclinical versus clinical, or not-at-risk versus at-risk. The basis for these labels appears not to reflect relationships that are consistently supported but rather what is intuitively appealing or a historical uncritical acceptance of the terminology found in the literature. On balance such labels should be abandoned since their continued use gives them a scientific legitimacy that is generally undeserved (Cox, Kwong, Michaud, & Enns, 2000).

For one thing, each of these labels implies incorrectly that these are qualitatively different individuals with respect to being or not being a pathological gambler. This is not a valid statement since, in the absence of additional evidence; it cannot be shown that, for example, a gambler who scored just above and a gambler who scored just below an arbitrary criterion score such as 5 are, in fact, different with respect to being or not being pathological gamblers (Robins, 1985). This can be generalized to the selection of any cutoff score as the criterion for defining a case.

In technical terms, acceptance of the construct of pathological gambling implies the two gamblers described in the above illustration represent, respectively, one of four possible combinations of states. These are (1) true positive, false negative (both pathological); (2) false positive, true negative (neither pathological); (3) true positive, true negative (the first pathological but not the second); or (4) false positive, false negative (the second pathological but not the first).

This description technically applies to the entire population, including nongamblers (who may be less than honest in responding) and those in treatment (who may be misdiagnosed). The selection of a criterion cutoff then determines the possible labels; that is those at or above can only be true positives or false positives. Those below the criterion can only be true negatives or false negatives.

This, of course, leaves unanswered such important questions as whether those at the lower score levels who are indeed pathological gamblers represent cases that are serious enough to warrant additional attention such as being the target of screening programs (Shaffer & Kidman, 2004). This is an important issue since the screening of large numbers of the population is an expensive undertaking. Further, the decision to take additional action such as referral for treatment or for more intensive assessment entails additional incurred costs associated with false

positive results. A second question that needs to be answered is whether those at or above the criterion represent cases that are clinically significant (Gambino, 2005). Clinical significance might be demonstrated by showing that those who meet or exceed criteria are more likely to seek help than those who do not (Productivity Commission (1999); Tremayne et al., 2001; WHO, 2004).

Conclusions

Researchers need to identify those risk and protective factors that are associated with the onset or prediction of pathological gambling if the terminology of risk is to be meaningful, useful, and relevant. This process is only recently underway and remains predominantly in the conceptual stage of development (Derevensky et al., 2004; Dickson, Derevensky, & Gupta, 2002; Evans, 2003; Messerlian et al., 2005; Potenza & Griffiths, 2004).

The best estimate of predicting the occurrence of pathological gambling, or the progression of the gambler to a more serious level, is to base it on the experiences of a large sample of people who are not pathological gamblers at the outset. These individuals are then followed over a defined period of time, e.g., 1 month, 6 months, 1 year, 5 years, 10 years, etc. The general task is to learn what proportion become pathological gamblers during the interval and determine the events and attributes that are associated with the change in status (Rothman & Greenland, 1998). The group is referred to as a cohort and the measure of interest is the incidence or inception of some event of interest, such as the onset of pathological gambling or movement to a more severe level.

What are needed, but currently lacking, are case definitions that can be related to the utility of clinical decisions (treat or not treat), their usefulness in testing research hypotheses (who is at risk), and their value for applications to policy (who will seek treatment), and that will, in the final analysis, serve to improve the health of those who suffer from gambling-related disorders. The latter is itself an unresolved question. Is there a single disorder that may be designated pathological gambling, or does the phenomenon encompass several distinct gambling disorders, for example, in the sense that different gaming venues (e.g., slot machines, scratch tickets, poker) have different etiologies or natural histories or that different treatment strategies will be required for these different forms of gambling (Toneatto, 2005)?

References

American Psychiatric Association. (1994).
Diagnostic and statistical manual of mental disorders (4th ed.). American Psychiatric Association, Washington, DC: Author.

British Columbia. (2003).
British Columbia prevalence study. Final report. Victoria: Ministry of Public Safety and Solicitor General.

Clarke, D.M., & McKenzie, D.P. (1994).
A caution on the use of cut-points applied to screening instruments or diagnostic criteria. *Journal of Psychiatric Research, 28*, 185–188.

Cox, B.J., Kwong, J., Michaud, V., & Enns, M.W. (2000).
Problem and probable pathological gambling: Considerations from a community survey. *Canadian Journal of Psychiatry, 45*, 548–553.

Derevensky, J.L., Gupta, R., & Dickson, L. (2004).
Prevention and treatment of adolescent problem and pathological gambling. In J.E. Grant & M.N. Potenza (Eds.), *Pathological gambling: A clinical guide to treatment* (pp. 159–168). Washington, DC: American Psychiatric Publishing.

Dickson, L.M., Derevensky, J.L., & Gupta, R. (2002).
The prevention of gambling problems in youth: A conceptual framework. *Journal of Gambling Studies, 18*, 97–159.

Evans, R.I. (2003).
Some theoretical models and constructs generic to substance abuse prevention programs for adolescents: Possible relevance and limitations for problem gambling. *Journal of Gambling Studies, 19*, 287–302.

Ferris, J., Wynne, H., & Single, E. (1999).
Measuring problem gambling in Canada. Final report. Phase I. Ottawa: Canadian Centre on Substance Abuse.

Finlayson, T.L., Moyer, C.A., & Sonnad, S.S. (2004).
Assessing symptoms, disease severity, and quality of life in the clinical context: A theoretical framework. *The American Journal of Managed Care, 10*, 336–344.

Gambino, B. (2004).
To test or not to test that is the question. *Weekly Addiction Gambling Education Report, 9*, 1–16.

Gambino, B. (2005).
Interpreting prevalence estimates of pathological gambling:

Implications for policy. *Journal of Gambling Issues, 14*. Available: http://www.camh.net/egambling/issue14/jgi_14_gambino.html

Gambino, B., Fitzgerald, R., Shaffer, H., Renner, J., & Courtnage, P. (1993).
Perceived family history of problem gambling and scores on SOGS. *Journal of Gambling Studies, 9*, 169–184.

Garmezy, N. (1994).
Reflections and commentary on risk, resilience, and development. In R.J. Haggerty, L.R. Sherrod, N. Garmezy, & M. Rutter (Eds.), *Stress, risk, and resilience in children and adolescents* (pp. 1–18). Cambridge: Cambridge University Press.

Jaeschke, R. Guyatt, G.H., & Sackett, D.L. (1994).
Evidence-based medical working group. User's guide to the medical literature. III. How to use an article about a diagnostic test. B. What are the results and will they help me in caring for patients? *Journal of the American Medical Association, 271*, 703–707.

Jenkins, R. (2003).
Making psychiatric epidemiology useful: The contribution of epidemiology to government policy. *International Review of Psychiatry, 15*, 188–200.

Kendell, R.E. (1989).
Clinical validity. In L.N. Robins & J.E. Barrett (Eds.), *The validity of psychiatric diagnosis* (pp. 305–323). New York: Raven Press, Ltd.

Kessler, R. (2002).
Epidemiological perspectives for the development of future diagnostic systems. *Psychopathology, 35*, 158-161.

Koch, M., Capurso, L., & Llewelyn, H. (1995).
Analyzing the discriminating power of individual symptoms, signs and test results. In H. Llewelyn & A. Hopkins (Eds.), *Analyzing how we reach clinical decisions* (pp. 51–67). London: Royal College of Physicians of London.

Kraemer, H.C., Stice, A., Kazdin, A., Offord, D., & Kupfer, D. (2001).
How do risk factors work together? Mediators, moderators, and independent overlapping and proxy risk factors. *American Journal of Psychiatry, 158*, 848–856.

Lesieur, H.R. (1984).
The chase: Career of the compulsive gambler. Cambridge,

MA: Schenken.

Messerlian, C., Derevensky, J., & Gupta, R. (2005).
Youth gambling problems: A public health perspective. *Health Promotion International, 20*, 69–79.

Miettinen, O. (1985).
Theoretical epidemiology. Boston: Wiley.

National Opinion Research Center (NORC) at the University of Chicago (1999).
Report to the National Gambling Impact Study Commission, February. Chicago: Author.

National Research Council (1999).
Pathological gambling: A critical review. Washington, DC: National Academy Press.

O'Conner, J., & Dickerson, M. (2003).
Definition and measurement of chasing in off-course betting and gaming machine play. *Journal of Gambling Studies, 19*, 359–386.

Potenza, M.N., & Griffiths, M.D. (2004).
Prevention efforts and the role of the clinician. In J.E. Grant & M.N. Potenza (Eds.), *Pathological gambling: A clinical guide to treatment* (pp. 145–157). Washington, DC: American Psychiatric Publishing.

Productivity Commission. (1999).
Australia's gambling industries. Report No. 10. Canberra, Australia: AusInfo.

Robins, L.N. (1985).
Epidemiology: Reflections on testing the validity of psychiatric interviews. *Archives of General Psychiatry, 42*, 918–924.

Rothman, K., & Greenland, S. (1998).
Modern epidemiology. Philadelphia: Lippincott-Raven.

Schlesselman, J.J. (1982).
Case-control studies. New York: Oxford University Press.

Schonert-Reichl, K.A. (2000, April).
Children and youth at risk: Some conceptual considerations. Paper presented at the Pan-Canadian Education Research Agenda Symposium, "Children and Youth At Risk," Ottawa, Canada.

Shaffer, H.J., & Hall, M.N. (1996).
Estimating the prevalence of adolescent gambling disorders: A quantitative synthesis and guide toward standard gambling

nomenclature. *Journal of Gambling Studies, 12*, 193–214.

Shaffer, H.J., & Hall, M.N. (2002).
The natural history of gambling and drinking problems among casino employees. *The Journal of Social Psychology, 142*, 405–424.

Shaffer, H.J., & Kidman, R. (2004).
Gambling and the public health. In J.E. Grant & M.N. Potenza (Eds.), *Pathological gambling: A clinical guide to treatment* (pp. 3–23). Washington, DC: American Psychiatric Publishing.

Shaffer, H.J., Hall, M.N., & Vanderbilt, J. (1997, December).
Estimating the prevalence of disordered gambling behavior in the United States and Canada: A meta-analysis. Boston: Harvard Medical School Division on Addictions, Harvard College Fellows.

Shaffer, H.J., LaBrie, R.A., LaPlante, D.A., Nelson, S.E., & Stanton, M.V. (2004).
The road less traveled: Moving from distribution to determinants in the study of gambling epidemiology. *Canadian Journal of Psychiatry, 49*, 504–516.

Susser, M. (1991).
What is a cause and how do we know one? A grammar for pragmatic epidemiology. *American Journal of Epidemiology, 133*, 635–648.

Toce-Gerstein, M., Gerstein, D.R., & Volberg, R.A. (2003).
A hierarchy of gambling disorders in the community. *Addiction, 98*, 1661–1772.

Toneatto, T. (2005).
A perspective on problem gambling treatment: Issues and challenges. *Journal of Gambling Studies, 21*, 75–80.

Tremayne, K., Masterman-Smith, H., & McMillen, J. (2001).
Survey of the nature and extent of gambling and problem gambling in the ACT. Sydney, Australia: Australian Institute for Gambling Research, University of Western Sydney.

World Health Organization (WHO). (2004).
Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization world mental health surveys. *Journal of the American Medical Association, 241*, 2581–2590.

Winters, K.C., Stinchfield, R.D., Botzet, A., & Anderson, N. (2002).
A prospective study of youth gambling behaviors. *Psychology*

of Addictive Behaviors, 16, 3–9.

Zhou, X.H., Obuchowski, N.A., & McClish, D.K. (2002). *Statistical methods in diagnostic medicine*. New York: John Wiley & Sons, Inc.

Manuscript history: submitted: April 8, 2005. This article was not peer-reviewed.

For correspondence: Blasé Gambino, 10 Ellet Street, Suite 314, Boston, Massachusetts, 02122, U.S.A. Phone: 617-282-2560, e-mail: Blasegambinophd@aol.com

Competing interests: None declared.

Ethics approval: None required.

Blasé Gambino (PhD, experimental psychology, University of Massachusetts at Amherst) currently serves on the editorial review board of the Journal of Gambling Studies. His publications include articles on mathematical models to eliminate bias in prevalence estimation research for single- and two-stage prevalence designs, as well as articles on the epidemiology of pathological gambling. Co-editor of Compulsive Gambling: Theory, Research and Practice (1989). His current interests are in the epidemiology of pathological gambling, latent structure, and taxometrics.

[1] Items enclosed by [ ] are the author's insertion, not Epictetus.

[2] Butler, R.L. (1974). Wood for Wood-Carvers and Craftsmen. New York: AS Barnes and Co.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

review

book review

Gambling: Who Wins? Who Loses?

By Gerda Reith. (2003). New York: Prometheus Books, ISBN 1-59102-073-5 (paperback). Price (approx.): $21.00 USD or $26.33 CND

Reviewed by Nigel Turner, Centre for Addiction and Mental Health, Toronto, Ontario, Canada. E-mail: Nigel_Turner@camh.net

Gambling: Who Wins? Who Loses? is an interesting collection of essays by a variety of experts in the gambling field. The essays cover diverse topics including the economics, psychology, sociology, morality, and spirituality of gambling. Each chapter analyses the complex issues that have emerged as a result of the global legalisation and expansion of commercial gambling. However, the question of "who wins and who loses" is never really addressed.

The book begins with a fascinating introduction by Gerda Reith that discusses the history of gambling. The remaining chapters are divided into seven sections, each with several chapters: (1) current trends in commercial gaming; (2) social and economic benefits and costs; (3) law, crime, and commercial regulation; (4) the "addiction" debate; (5) social trends, problem gambling, and the challenge to public policy; (6) psychological and environmental factors; and (7) ethical and philosophical issues.

Gerda Reith's introductory chapter is a fascinating exploration of the history of shifting attitudes towards gambling over time. However, she often fails to pinpoint the dates of events, which makes it hard to follow the chronology of various social movements. In addition, her discussion appears to jump around in time, and yet fails to capture the dramatic ebb and flow of gambling over the past 200 years (e.g., anti-gambling riots of the 1830s, wide open gambling in America after the Civil War, the prohibition of gambling from 1902 to 1931). At one point she claims that "…as

the perception of gambling as a vice began to take hold in the public mind, lotteries began to be associated with political corruption, dishonesty" (p. 16). This seems backwards to me. I think it would make more sense to argue that the exposure of political corruption around lotteries and the rampant cheating by professional gamblers (Asbury, 1938) lead to a renewed perception of gambling as a vice in the public mind (see also Rose, 1986).

The first two sections of the book deal with the impact of gambling on society. In chapter 1, Eadington lists conditions under which expanded gambling has been beneficial and not so beneficial to the economy. He argues that resort casinos and rural casinos designed to attract tourists are generally beneficial economically to their communities. In contrast he notes that convenience gambling (gambling machines in bars) produce fewer benefits and more social costs. In chapter 2, McMillen focuses on how the globalisation of gambling is a problem for national sovereignty, culture, regulation, and prevention.

The second section specifically deals with costs and benefits. Both Goodman (chapter 4) and Grinols (chapter 3) come to negative conclusions about gambling. In chapter 5, Stitt, Nichols, and Giacopassi report the results of a survey of communities where casinos have opened and found mixed results ranging from very happy to unhappy.

In chapter 3, Grinols discusses the economics of gambling. He begins by challenging assumptions about the economic value of jobs and tax revenue. Grinols derives an economic equation to argue that jobs are not a benefit, but this discussion is rather hard to follow. He claims that the net business revenue and tax revenue from gambling are zero because the revenue is a transfer from other businesses. He argues that the only real economic benefit of gambling is the consumer "surplus" that non-problem gamblers gain by having a greater opportunity to gamble. In contrast Eadington in Chapter 1 argues that convenience gambling, which has the highest consumer "surplus" (increased ease of gambling), is the least beneficial and most problematic form of gambling. Grinols then produces a table that shows the costs and benefits of gambling, concluding that the net result is that gambling is bad for the economy. McKay & Lesieur (2005) have noted that Grinols's use of crime and other cost estimates from Gamblers Anonymous (GA) members may have resulted in an exaggerated estimate of the costs when applied to the general population of problem gamblers. He also does not take into account crime related to illegal gambling. In addition, I was also left wondering if we looked at some other randomly selected industry or other economic project (e.g., a new car factory, a sports stadium, a mega mall) and did not count the jobs and tax revenue as a benefit, would the net result also be negative? A contrasting example would have added

substantially to the paper and would perhaps help financially desperate communities to think outside the gambling box. All things considered, however, Grinols's chapter is well worth reading.

In Section 3, which focuses on the law and crime, chapter 6 by Rose looks to the past to find clues to the future. He also provides an interesting summary of the reasons why legal gambling spread in America in the past 20 years. Chapter 7 by Hammond examines various American gambling laws to assess if on-line gambling is currently against the law, and concludes that the law has no clear-cut answer.

In chapter 8, Albanese argues that although the number of reported crimes might increase with greater gambling opportunities, per capita crime rates actually decrease when a casino is opened. His statement is based on the assumption that casino visitors should be included in the formula for calculating crime rates. There are two problems with this paper. First, the use of arrest statistics often does not take into account fraud and embezzlement (McKay & Lesieur, 2005). Secondly, taking this argument to its logical extreme, one could argue that a city plagued by crime could statistically solve its crime problem, simply by bringing in more tourists and commuters.

In chapter 9 Meirs examines problems around regulation and competition regarding consumer protection in commercial gambling. He concludes that the use of consumer protection models in the financial service sector can serve as an analogy for gambling. This idea is interesting, but fails to address the whole problem of addiction. Consumer protection issues for pathological gamblers are likely to be different than the protection needs for a non-problem gambler. Competition, for example, generally drives costs down, which is good for the healthy non-addicted gambler who would welcome the lower cost of entertainment. But lower costs may make things worse for the addicted gambler by enabling more frequent or substantial intermittent reinforcement. This paper touches upon important issues, but fails to examine them from the perspective of preventing addiction.

Section 4 gives three different views on what is wrong with the current DSM-IV diagnostic system, specifically with the classification of pathological gambling. All three authors attack DSM-IV for various reasons. Shaffer notes the lack of a gold standard, Dickerson claims that we cannot tell the difference between pathological and non-problem regular gamblers, and Peele says that pathological gambling is all about behaviour. Shaffer uses the concept of comorbidity with mental health problems to argue for a syndrome rather than for a separate diagnosis. He lists a number of possible relationships that might explain comorbidity, but all of his models assume a simple linear

disorder. He ignores the cyclical nature of the disorder in which depression can be a cause of a gambling problem and an effect of excessive gambling at different times in the same lifetime. In addition, current behavioural theories of addiction (positive and negative reinforcement) can explain comorbidity without suggesting an underlying biological syndrome. A need to escape from miserable life experiences, for example, could negatively reinforce any number of modes of escape—gambling, overeating, shopping, drugs.

Dickerson makes an interesting argument for halting use of the term "pathological gambler" because pathological is redundant. However, at least the concept of the "pathological gambler" is well-defined and based on empirical evidence and clinical experience. In contrast his preferred term "problem gambler" is poorly defined and means something different depending on who is using the term (e.g., it can be a South Oaks Gambling Screen score of +1 or +3 or +5, or >0 and < 5). Many of his arguments are related to problems with measurement, but does that mean there is a problem with the definition of the underlying disorder or that we need to refine measurement tools and adjust the cut points (e.g., scaled and weighted items, for example)? It may be hard to determine a perfectly reliable cut point between non-problem gamblers and pathological gamblers, but the same problem occurs in cancer detection. Individual diagnostic tests may indicate the presence of a tumour in a person who does not actually have cancer (false positives) and others may have cancer, but are diagnosed as not having it (false negatives). For this reason, doctors perform multiple diagnostic tests to reduce errors. Furthermore the severity of a tumour varies from benign, to treatable, to terminal. Does this mean that we should do away with the diagnosis of cancer?

In general I agree with much of what Peele says in chapter 12, especially that an examination of gambling addiction can shed light on other addictions. As a psychologist I agree that addictions are at least in part a result of experience. But his statement that a disease model implies an inescapable biological source for addiction is strangely out of touch with medical practice. I know what he is referring to: the GA and AA view that once one is addicted the only solution is life-long abstinence. Although abstinence might be a good idea, this view is not a necessary consequence of calling something a disease. In the field of medicine, diseases can be acquired for a variety of different reasons (e.g., a pathogen, environmental exposure, a recessive gene), are often preventable (e.g., no smoking, exercise, drink milk), are treatable (e.g., medicine, surgery, lifestyle changes), and are often cured by oneself (e.g., antibodies, bed rest, nutrition). The disease model that is attacked by Peele and Dickerson does not fit in well with the general notion of medical disease. A different view would be to argue that we should view addiction as being more, not less, like a

medical disease (e.g., preventable, treatable, curable) and less like a fundamental aspect of character.

The assessment and diagnosis debate as presented in this book documents a number of the problems with the current DSM-IV system. Unfortunately, no one argues about what is right with DSM-IV, even though most authors in the field and in the book find it useful enough to use as a basis for assessment, prevalence estimates, and treatment. The issues raised in these chapters will become of paramount importance in the next few years as we move towards the next edition of the Diagnostic and Statistical Manual (DSM-V).

Section five is the most research-oriented section in the book. The highlights are two chapters: the one by Volberg that discusses the prevalence of gambling and problematic gambling, and the chapter by Derevensky, Gupta, Hardoon, Dickson, and Deguire, which discusses the causes and prevention of youth gambling. Volberg's data is useful in defining the nature of the growth in gambling. Derevensky et al.'s paper provides helpful guides regarding the components to include in a prevention program.

Section six deals with psychological factors in gambling. Griffith and Parke's chapter documents some of the characteristics of gambling machines and the marketing strategies that may increase gambling. Their views of gambling are largely based on behavioural theories of conditioning. Their catalogue of features is quite informative. However at this point there is no data testing the extent to which these features disproportionately increase problematic gambling compared to non-problematic gambling.

Manson's Chapter 18 seems out of place. It is a factual discussion of the probabilities of various games. It briefly discusses irrational thoughts about gambling, but otherwise says little about the psychology of problematic gambling. Manson says that the news from cognitive psychology is grim because people have a poor understanding of random chance. However, in spite of this poor understanding most people who gamble do not gamble away their life savings.

Section seven ends the volume with discussions of the morality and philosophy of gambling. Skolnick in chapter 19 discusses the problems of regulating vice. Like Rose (chapter 6), he concludes that prohibiting gambling is generally a futile act. He notes that in the past societies have generally either prohibited or promoted vices. He argues that we should seek a compromise between criminalization and exploitation.

In chapter 20 Peter Collins argues that in a free society there is no

valid moral argument for making gambling illegal. This conclusion is based in part on his assumptions that the cost of gambling is low compared to alcoholism and that the prevalence of problematic gambling is small. I personally found his argument compelling, but if one followed his logic it could be argued that there are numerous other laws that violate individual freedom (e.g., seatbelts, mandatory education, speeding limits, age restrictions on movies). Should these be repealed? As with many other chapters, I felt that the book could have shown the opposite side of the story. Interestingly, Grinols's chapter contradicts Collins in some respects by highlighting the economic costs of gambling.

In chapter 21 Gabriel argues that gambling is a spiritual act. While this might be true for spiritual people, I'm not convinced that a professional poker player would see his "all in re-raise" as spiritual. The chapter may provide some insight into how gambling-like activities functioned historically, but I don't think this approach matches well with modern gambling. The paper does not clearly distinguish between ritual (divining gods' wills with dice), games, (playing for fun, ability, or skill) and gambling (playing for money). For example, there is a passage about a saint playing chess with god (p. 344), in which the saint gladly surrenders to god. Although people can place bets on chess (as well as any other game), chess is not inherently a form of gambling but usually a game of pure intellectual strategy. In addition, in this passage the saint wants to lose because the loss is union with god—a greater win. But does the typical gambler view a loss as a union with god?

Scanlon's chapter (22) is a philosophical reflection on the cultural importance of making sense out of nonsense. He argues that the value of gambling is to make use of nonsense.

Overall evaluation

Many of the essays in the book are summaries of papers that have been presented elsewhere in articles or at conferences. The book is a relatively compact collection of the diverse points of view in the pathological gambling field. This book may perhaps provide a basis for an upper level undergraduate or graduate course in the study of gambling.

Reith's book will likely stimulate informed debate about a wide range of topics related to gambling. However, in some cases only one side of a particular debate is given, leaving the reader a glimpse of the battle, not a full view. For example, Grinols and Goodman challenge the prevailing arguments by governments and the gaming industry about the economic value of expanded gambling, but the flipside of these arguments are only hinted at in chapters 1, 8, and 20 and are not fully explored. Likewise Peter

Collins presents us with moral arguments for a greater liberalisation of gambling laws, but no similar moral treatise is provided for the opposing view.

A flaw with several chapters is that they fail to distinguish between gambling and pathological gambling (chapters 9, 11, 18, 21, 22). For example, Gabriel says, "…gambling should not be viewed as inherently evil or immoral, but as a disease of the spirit that uses pleasure to avoid pain" (p. 345). But non-problematic gambling is not a disease of the spirit or a disease at all. Manson characterises most gamblers as being impulsive and poorly informed. I feel it is unfair to characterise non-problem gamblers in this manner. Turner, Wiebe, Falkowski-Ham, Kelly, and Skinner, (2005) recently reported finding that most people who gamble set limits on their gambling. And while it is true that most people do not fully understand the independence of random events, the vast majority of people understand that they are more likely to get rich working (94.5%) than by gambling (see Turner, et al., 2005, Table 6). These findings suggest that people who gamble are not as uninformed as Manson suggests.

What is missing from this book is a discussion about the psychology, sociology, economics, anthropology, or spirituality of non-problematic gambling. Researchers need to spend more time looking at non-addicted gamblers to derive lessons for prevention. Why is it that some people can sit down at a gambling game, have fun, play for an hour or two, and then cash out without feeling any compulsion to gamble away everything?

This book is bound to stir up debate. Highlights include Eadington's discussions of situations under which casinos are beneficial or harmful to a community, Grinol's on the economics of expanded gambling, Rose's use of history to speculate about the future, Volberg's on prevalence, Derevensky et al.'s analysis of youth gambling, Skolnick's discussion of the problems of regulating vice, and Peter Collins on the morality of gambling. The papers reflect the diversity of scholarship in the field and many of them are thought-provoking. This book is a relatively compact summary of social and economic costs and benefits of gambling activity.

References

Asbury, H. (1938).
Suckers Progress: an informal history of gambling in America. New York: Thunder Mouth Press.

McKay, C., & Lesieur, H. R. (2005).
Book review. Gambling: Who wins? Who loses?
eCOMMUNITY: International Journal of Mental Health &

Addiction, 2 (2), 80-87.

Rose, I.N. (1986).
Gambling and the law. Los Angeles: Gambling Times.

Turner, N.E., Wiebe, J., Falkowski-Ham, A., Kelly, J., Skinner, w. (2005).
Public awareness of responsible gambling and gambling behaviours in Ontario. *International Gambling Studies, 5* (1), 95-112.

Manuscript history: Submitted: June 2, 2005. This article was not peer-reviewed.

For correspondence: Nigel E. Turner, PhD, Scientist, 33 Russell Street, Centre for Addiction and Mental Health, Toronto, Ontario, Canada M5S 2S1. Phone: (416)-535-8501 ext. 6063, fax: (416)-595-6899, e-mail: Nigel_Turner@camh.net.

Competing interests: None declared.

Nigel E. Turner is by training a cognitive research psychologist and has had a long-term involvement in numerous gambling studies. He is particularly interested in gambling systems and the experience of gambling. He is working towards an integrative model of the psychology, biology, and sociology of pathological gambling. He has a keen interest in history and as a hobby participates in historical re-enactments of the War of 1812.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI.* To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

review

book review

Born to Lose: Memoirs of a Compulsive Gambler

By Bill Lee. (2005). Center City, MN: Hazelden, 2005. ISBN 1-59285-153-3 (softcover). Price (approx.) $12.00 CND or $10.00 USD.

Reviewed by Henry R. Lesieur, Rhode Island Hospital, Providence, Rhode Island, U.S.A.
E-mail: Hlesieur@aol.com

Born of a schizophrenic mother and compulsive gambling father, Bill Lee tells a fascinating tale of action and abstinence. His mother made suicide attempts, while his father was alcoholic and a sexual predator. His father created an herbal concoction, intending to abort him, which resulted in congenital defects instead. If this were not enough, his parents tried to sell him to an elderly couple when he was three years old. His mother continually told him he was good for nothing while his father ignored him, except to take him to gambling parlors starting from toddlerhood. Gambling was the main thing he had in common with his father, a "connected" member of a Chinese gang.

To avoid being beaten by his older brother, who took care of him, Lee gravitated towards the streets where he hustled and became a member of a Chinese gang in San Francisco. His gang experiences were described in another memoir: *Chinese Playground* (Lee, 1999). He experienced violence and gang wars in which some of his friends were killed. In addition to gang activity, he engaged in legitimate employment in a pharmacy, went on to college (he was placed on the Dean's List), and learned about the stock market. This learning produced an addiction to the stock market in addition to other forms of gambling.

This is a fascinating tale of problem gambling episodes, attempts at recovery, and numerous relapses. Lee realized that he had a problem with his gambling when he decided to work as a blackjack dealer in Lake Tahoe but couldn't wait long enough to fill out a job

application before he went to the tables and proceeded to lose his stake.

Lee is psychologically minded. He has a BA in psychology, volunteered at the San Francisco Hospital's Psychiatric Emergency Services, and has had years of psychotherapy. As a result, he is familiar with its language. For example, of the gang activity he comments: "…the lifestyle compensated for my insecurities and provided relief from emotional pain that had been festering deep inside me" (p. 39). His marriage lasted two years; he states he was not mature enough. This rejection was an echo of the rejection by his parents and he became quite angry and depressed. He states, "My reaction was to mask my pain by expressing tremendous anger at Kathy [his wife] and just about everyone else I came in contact with" (p. 53).

Lee fulfilled all of the DSM-IV criteria for pathological gambling with one possible exception: "needs to gamble with increasing amounts of money in order to achieve the desired excitement." Lee makes a common comment among gamblers: His increase in wagering size was not to increase excitement but to chase losses. He states, "Out of desperation to recoup my earlier blackjack and stock market losses, I increased the size of my bets…" (p. 70). His gambling preoccupation was obvious throughout the book. His failed efforts to control his gambling were recurrent. He was restless when trying to quit gambling. While his irritability could have been a product of bipolar II disorder, he also experienced strong cravings. He writes about his cravings: "At around 3:30 am, I woke up drenched in sweat and shaking. My urge to gamble left my entire body feeling like one giant mosquito bite, and no amount of will power would have been able to stop me from scratching myself … After throwing on some clothes, I drove to a card club about forty miles away" (p. 121). He talks about escaping from his insecurities and emotional pain. He chased his losses. He lied to family and others about his gambling. He lost a marriage as a result of the gambling, but possibly also a result of his antisocial personality disorder. He engaged in illegal activity to finance his gambling, and he relied on many others for money to get out of desperate financial situations produced by his gambling.

Knowing that Bill Lee was a pathological gambler does not tell you as much as you need to know about him. The list of diagnosable psychiatric disorders Lee experienced was long. As a youngster he washed his hands until they bled and obsessively tidied things both at home and at work. This obsessive-compulsive disorder continued well into adulthood. As a teen he experienced conduct disorder, funding his gambling not just by stealing but also by extorting money from other kids and using violence to get money. He was truant, disruptive in class, and hostile towards teachers. While some of these behaviors could be explained by his gambling,

their extent appears to have been caused by more than just gambling. In all probability, the conduct disorder was a response to his unsettling home life.

After entering adulthood it appears that he fulfilled the criteria for antisocial personality disorder, at least while he was a gang member and possibly later. His experiences as a youth in the streets and as a gang member where he witnessed shootings, as well as a shooting incident at work contributed to a diagnosis of posttraumatic stress disorder by one of his therapists. Finally, his last therapist, possibly explaining his emotional ups and downs, diagnosed him as having bipolar II disorder. It is no wonder then, that Mr. Lee is an advocate of psychiatric evaluations for Gamblers Anonymous (GA) members in order to rule out other problems.

It is also not a wonder that Lee talks about "self-medication" by gambling. He primarily referred to this in response to depression. In one instance, he reached out to the therapist he went to for years, but found she had died. This drove him deeper into depression and a desire to self-medicate. He again sought to escape emotional pain. He relapsed and seven months later was guilt-ridden and suicidal.

Bill is enamored of GA, especially of page 17 in the GA *Combo Book*. Basil Browne calls this "page 17 consciousness" as he notes GA's selective adaptation of the Alcoholics Anonymous program (Browne, 1991). Lee focuses on page 17 for much of the book and even reproduces it in an appendix. Only later in his recovery did he recognize that the 12 steps were important for his recovery. He discusses these steps and how they acted as a guide to his life. For example, in many of his activities he was a "hustler," cutting corners and dealing in inside information to improve his ability to hire employees from the competition or obtain information that could be used to outsell the competition. He states, "The lying, cheating, and win-at-any-costs attitude I was notorious for contradicts everything Twelve Step Fellowships advocate" (p. 162). In addition to this acknowledgement, he states that his book *Chinese Playground* began as a fourth step inventory. The appendix at the end of the book provides a good example of step work notes that clients will find useful.

Lee is an advocate for service work in GA. He states that making coffee, setting out the literature, chairing a meeting, being a secretary, and other tasks are good indicators of recovery. He also notes the essentials of using the telephone list (a list of GA members—first name and last initial—from a group along with their phone number) and obtaining a sponsor. In fact, he had many sponsors.

While there are some statistical errors in the beginning of the book,

most are not exceedingly problematic. They would be annoying to an academic but are understandable in light of Lee's desire to put some "facts" into his presentation. Students should be advised to ignore them and corrected by instructors.

I highly recommend this book. It is an ideal read for compulsive gamblers and their significant others. In college settings, students in courses in abnormal psychology, sociology of deviance, addictions, and addictions treatment will find it enjoyable and informative. It has much to say about addictions and self-help groups, as well as about pathological gambling.

References

Browne, B.R. (1991).
The selective adaptation of the Alcoholics Anonymous program by Gamblers Anonymous. *Journal of Gambling Studies, 7* (3), 187–206.

Lee, B. (1999).
Chinese playground: A memoir. San Francisco: Partners/West.

Manuscript history: Submitted June 2, 2005. This article was not peer-reviewed.

For correspondence: Henry R. Lesieur, PsyD, PhD, Department of Psychiatry Rhode Island Hospital, 235 Plain Street, Providence, RI 02905 U.S.A. Phone: 401-277-0721, fax: (401) 277-0744, E-mail: Hlesieur@aol.com

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

Editorial Contact: phil_lange@camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

review

book review

Internet Gaming Law

By I. Nelson Rose and Martin D. Owens. (2005). Larchmont, NY: Mary Ann Liebert, Inc., ISBN 0-913113-360-0 (hardcover). Price (approx.) $195 USD within the U.S.A. or $225 USD outside of the U.S.A.

Reviewed by William Thompson, University of Nevada at Las Vegas, Las Vegas, Nevada, U.S.A.
E-mail: william.thompson@un;v.edu

The authors of *Internet Casino Law* start their work with the most vexing question of them all—is Internet gambling legal? The answer they offer at the conclusion of the first chapter is the answer we already know: "Yes." "Well maybe yes." "No." "Well, maybe no." "Yes—if, and, yes—but. No—if, and but, except for, and considering whether." And so it goes. That this type of answer is already our "gut" feeling subtracts nothing from the discussion. For in the pages of *Internet Gaming Law*, I. Nelson Rose and Martin D. Owens offer answers—all of the above answers, with critical commentary, their perceived observations and wit. In addition, there are thorough discussions of many of the 233 law cases cited, as well as scores of pieces of relevant legislation.

The 14 chapters include a discussion of the basic question above with a comprehensive review of the legal elements involved in the definition of "gambling." Also included are a chapter reviewing specific postures by federal, state, and local venues on the regulation of on-line gambling, and another on the philosophical question: Is there a "right" to gamble? Chapter six follows with a focus upon state laws, chapter seven on federal laws, and chapter eight on Indian gaming laws. The latter offers a comprehensive review of the Indian Gaming Regulatory Act. The ninth chapter offers incise commentary on U.S. federal jurisdiction over on-line gambling headquartered in foreign venues. Chapter 10 presents foreign venue law regarding on-line gambling operations, and is followed by a consideration of the multitude of means for

transferring funds back and forth between players and operators. The 12th chapter looks at the roles of critical mediating persons including bankers, servers, and advertisers. The last two chapters offer fresh commentary on developing and emerging issues concerning Internet gaming sites.

Chapter 14 looks to the future. Here, case law and legislation is left behind for a discussion of technological advances that may preclude any prohibition of on-line gambling. However, the authors do point to advances that may allow venues to track Internet gaming within their geographical limits. They write "that technology will make Internet gambling quicker, more appealing, and allow easier access from smaller platforms and devices" (p. 271).

They pose prospects that physical gambling itself may face an inevitable demise. At least land-based casinos themselves will be consumed internally with virtual technologies appealing to their patrons. Their prediction has already seen the light of reality, for the Nevada legislature recently gave authorization for casinos to allow patrons to carry around hand-held betting computers as they wander the public areas of the casino.

In the final chapter, Rose and Owens also see every personal computer worldwide being a "slot" machine. Cable television connections will put a potential slot machine into every living room. Betting exchanges, trivia games, skill games, or fantasy leagues will challenge authorities, as these operations dodge the central elements found in the legal definition of "gambling."

Looking at the changing role of government, the authors find little room for hope in prohibitions. National borders cannot stop Internet penetration—that is, lacking the draconian methods of the totalitarian state. And small governments will always be attracted by revenues from operators within their midst—especially if the operators are beaming their products to outsiders. The authors spend their final pages supporting the idea that jurisdictions promote private self-regulation on a transnational global basis. They cite current models including the off-track betting operators, and a private group called Internet Corporation for Assigned Names and Numbers as well as NAFTA, MERCOSUR (South America’s southern common market), and the World Trade Organization.

Collectively, the chapters provide an intensive look at the title topic, but when the Internet is not the specific focus of a paragraph, the reader finds a refresher course on everything that is important in gaming law: gambling debts, Indian gaming intricacies, advertising and gambling, etc.

I. Nelson Rose, a professor at Whittier Law School (Costa Mesa, California), became an important gambling scholar with the appearance of his 1980 law review article that expounded upon his now famous (infamous?) theory of three waves of gambling legalization in America (Rose, 1980). From 1979 until the 21st century, Rose described the Third Wave of legalization, and he boldly predicted the date on which the wave would crash upon the shore and we would have another trough of gambling activity. Once he gave a precise day in the year 2029.

In this book, he offers the view that the days of such predictions are over. The triumph of technology over gambling with the advent of the Internet suggests that an end to the gambling fever of today is just out of the question. The Third Wave is here to stay. The old adage that "necessity is the mother of invention," has now been stood on its head. "Invention" is now "the mother of necessity." As gambling machines come onto the scene, more people find that they "have to" use them, ditto for computerized gambling machines.

Rose continued his role as a scholar with his first major book, *Gambling and the Law* in 1986, and a lesser work *Blackjack and the Law*, in 2000. The latter book was intended to be the second edition of the first, but time constraints sometimes tell authors to "sum it up," and move on. He participated as a co-author of *Casino Law Cases and Materials*. He has moved on well, being a consultant for every kind of gambling interest, as well as a featured speaker at every conference of renown in the gambling studies field.

Martin Owens is perhaps producing his first major publication effort directed towards gaming. He is a crucial partner in the book, for he lives the daily life of a lawyer-practitioner. He has been in the trenches, whilst Nelson often pontificates from the ivory tower.

This reviewer wishes to note the following. Rather than a being competitor for or with Anthony Cabot's series of books on Internet gambling, this book should be viewed as complimentary. The Cabot series and this text work well in tandem to give the gambling scholar as well as the gambling operator-practitioner essential wisdom to venture into the briar patch thicket that the authors identify in their initial chapter.

This law textbook is comprehensive, integrated, and written in one style, as opposed to the equally valuable Cabot series that instead presents chapters by different authors, most of which concentrate on specific venues. No person venturing into the thicket should leave home without both sets of books in their knapsack. But this review is directed to the Rose-Owens volume.

While not all of the book is direct legal analysis (we do get a good dose of Rose-style historical commentary and opinion), the authors tell the reader that their advice on Internet gambling does not constitute formal legal opinion. They offer that such advice must come from those familiar with a client's specific case situation. In this realm of law, those making policy— legislators and judges— can upset the apple cart of certainty in one fell swoop of dicta.

But to be honest, we should not expect authorities to soon bring clarity to the Internet gambling scene. There are simply too many forces already in place with too many conflicting viewpoints and cross intentions to expect clear-cut judicial rules to emerge soon. Nor can we expect legislation where it could actually be effective in the regulatory arena—especially legislation at some global level, in the United Nations, or by a multi-national treaty organization.

Books are fun, if they can be. The reader might think that no task could be as boring as plodding through a law text on the vagaries of Internet gaming. But this reader found the Rose-Owens volume to be an enjoyable read, and even at times, fun too.

Reference

Rose, I.N. (1980).
The legalization and control of casino gambling. *The Fordham Urban Law Journal, 8* (2), 245-300.

Manuscript history: submitted: June 29, 2005. This article was not peer-reviewed.

For correspondence: William N. Thompson, PhD, Department of Public Administration, University of Nevada at Las Vegas, Las Vegas, NV 89154-6026 U.S.A. Phone: 702-895-3315, e-mail: william.thompson@unlv.edu

Competing interests: None declared. (Professor Rose and I have occasionally been on the same side of a case as expert witnesses, and once we were on opposite sides).

William N. Thompson (PhD, University of Missouri-Columbia) is professor of public administration at the University of Nevada-Las Vegas. He is an active researcher on gambling topics. His books include: *Gambling in America: An Encyclopedia of History, Issues, and Society* (2001); *Native American Issues: A Reference Handbook* (1996); *Casino Customer Service* (1992, 1996, with Michelle Comeau); *International Casino Law* (1991, 1999, with Anthony Cabot); *The Last Resort: Success and Failure in Campaigns for Casinos* (l990, with John Dombrink). He has served

as a consultant to public and private organizations including The National Gambling Impact Study Commission, The President's Commission on Organized Crime; The Detroit Casino Study Commission, Lotto Quebec; The Manitoba Lottery Commission; The Netherlands Board of Gambling; several Native American tribes with gaming facilities; and commercial casinos.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

review

movie review

Walking Tall (2004)

Runtime: 87 minutes. Rating: PG-13 (parental guidance advised if under 13 in Ontario). Currently available on DVD and VHS, approx. cost: CND$21. Production: United States: MGM; producers: J. Burke, P. Schiff, L. Foster, A. Amritraj, & D. Hoberman; director: K. Bray; starring Dwayne "The Rock" Johnson (TV wrestling star) as Chris Vaughn, Johnny Knoxville as the likeable deputy Ray Templeton, and Neal McDonough as the evil casino owner Jay Hamilton.

(The earlier version of this movie is also described in this review: *Walking Tall* (1973), runtime 125 minutes, rating: R (USA), currently available on DVD and VHS, approx. cost: CND$14. Production: United States: Cinerama; producer: M. Briskin; director: P. Karlson.)

Reviewed by Nigel E. Turner, Centre for Addiction and Mental Health, Toronto, Ontario, Canada. E-mail: Nigel_Turner@camh.net

A note for readers: The goal of my movie reviews is to examine images of gambling in films to determine what these films tell us about gambling and the gambling industry. I am particularly interested in examining distorted images of gambling. As such, my reviews often include "spoilers" that reveal details about the plot.

Walking Tall (2004) is a movie about vigilante violence directed against a casino. It is a remake of a highly successful 1973 movie of the same name (Briskin & Karlson, 1973) that spawned two sequels and a television series. In the original film, a professional wrestler returns home after a number of years away to find that his hometown is being run by criminals who have paid off the sheriff, politicians, and judges to overlook their operation of casinos, bars, houses of prostitution, and bootleg whisky distilleries. The film was based on true events in the life of Tennessee sheriff Buford Pusser (Joe Don Baker), who removed the corruption in his county with a

big hickory club. In the 1973 film, he comes into conflict with these criminal forces when he is in a casino and notices that the dice shooter is cheating by using two sets of dice. He demands that the casino give money back to a friend. He is beaten up, stabbed, and left to die in a ravine. He survives, and once he recovers, he walks into the casino carrying a big stick, attacks the thugs who cut him, and demands money for his car, clothing, and doctor's bills from the cashier. He is then arrested for assault and robbery and stands trial, but is acquitted after showing the jury the scars left by the casino staff. He then runs for sheriff and proceeds to clean up the town while brandishing his big stick. After much violence, including the murder of Pauline Pusser (Buford Pusser's wife, played by Elizabeth Hartman), the movie ends with a bonfire as the good citizens of the county burn the craps tables.

Fast forward to the beginning of the 21st century, when casinos are licensed and run by businesspeople who offer entertainment services to their customers for a fee (a house edge). Such is the climate in which MGM decided to remake the classic movie. In the 2004 remake, Special Forces soldier Chris Vaughn returns home from a long tour of duty to find his hometown being run by a rich casino owner, Jay Hamilton. Jay Hamilton, despite his bleached blond hair, has apparently managed to secure an Indian gaming licence because he has some distant native ancestry. Initially, Hamilton and Vaughn are on good terms. Hamilton offers Vaughn a great night out at the casino with the full VIP treatment complete with alcohol, gambling, and strippers. But Vaughn comes into conflict with the casino when he discovers that the craps dealer is using loaded dice to cheat the craps players out of their money. He seizes the loaded dice and throws a winning roll and demands payment for his roll. The dealer refuses, a fight ensues, etc. Eventually, the security guards, by sheer force of numbers, overcome Vaughn. The casino security then cut and torture him and leave him for dead. He recovers, discovers that the casino guards are dealing drugs to kids, and smashes up the casino. As in the original film, he is arrested, charged, and acquitted after showing his scars. He then runs for sheriff and proceeds to clean up the town with a big stick.

The 2004 movie essentially serves as a vehicle for strongman action hero Dwayne "The Rock" Johnson to strut his stuff. However, it is interesting to compare the two movies. The movies follow similar story lines up to the point where the main character (Pusser, Vaughn) becomes sheriff; however, the original movie is much more violent because the criminals make several attempts on Pusser's life, and the film ends more in tragedy than in triumph. The violent treatment of the main character by the casino staff makes more sense in the original because the casino is a criminal operation. In the remake, the casino is licensed, so the staff could simply have had Vaughn arrested and charged with assault and

property damage, and banned him for life. Cutting him with a knife makes no sense. In addition, the friend who is being cheated does not even seem all that concerned that he is being cheated. He's too busy trying to woo a woman at the table.

The cheating itself is not handled well in either film. In craps, a player is the shooter. The other players can bet with the shooter (passline or come), against the shooter (don't pass or don't come), or on a wide variety of other bets. There are so many different ways of playing craps that loaded dice would be more of an advantage to the players than to the casino.

There are many movies in which casinos are robbed (e.g., *Lady Killers*, Ashley, Greenspun, & Preisler, 2004; *Oceans 11*, Weintraub & Soderbergh, 2001), but the two versions of *Walking Tall* (1973; 2005) are the only movies that I know of in which a casino is specifically attacked. The focus on the casino is actually stronger in the remake than in the original. In the 1973 original, Pusser enters the Lucky Spot Casino to attack the thugs who had previously cut him. He does not target the casino equipment per se. In the remake, Vaughn initiates his attack by smashing apart a slot machine. The scene of "The Rock" smashing slot machines and table games with a big stick nearly makes the film worth watching, but overall the movie is a disappointment.

Neither of the two films examines the consequences of gambling. In the original, Pusser's goal is to end the corruption and criminal exploitation of the people in his hometown. Gambling, alcohol, and prostitution are three aspects of a network of criminal activities that are exploiting the poor (especially the black population). However, the movie focuses mostly on Pusser's attempts to shut down illegal stills after several black people die from drinking unlicensed alcohol. Similarly, instead of exploring the problems associated with gambling, the remake focuses on illegal drugs that are apparently being sold by the casino security staff to children. However, exactly why a legal casino would sell drugs is never explained. The movie even acknowledges the absurdity of its own plot. In one scene, Sheriff Vaughn confronts Jay Hamilton, the casino owner, about the drugs. Hamilton asks him why he would jeopardize his casino licence by selling illegal drugs and goes on to note that a casino is a license to print money. And yet, sure enough, Sheriff Vaughn finds Hamilton's drug factory during what is apparently an unwarranted search of the old lumber mill. Thus, the real problem with the casino as depicted in the 2004 movie is not the potential addictive nature of gambling but the sale of drugs to children.

The movie seems rather odd in that it brings up the social issues around casinos, but then misses all of the real problems with casinos and focuses instead on drugs. For example, the lumber

mill that was the lifeblood of the community is closed and then a casino is opened. Instead of examining the economic, social, and commercial pressures that may drive a financially desperate community to open a casino (Goodman, 2003), the movie portrays the closing as being just another part of the evil of the film's arch villain (Hamilton). Once the casino is gone, the lumber mill is reopened.

In the original movie, gambling serves a crucial function of being the trigger that brings Pusser into conflict with organized crime. Once he is sheriff, the criminals essentially declare war on him. The problem for the remake is perhaps that since casino gambling is no longer a criminal operation, the evildoers have to be engaged in something else. How do you generate enough self-righteous anger against a legal pillar of the community to justify waving around a big stick? The answer: drugs. This is disappointing because the movie could have made some important points about the power that the gambling industry has today.

In writing this review, I sent it out to a number of colleagues for their feedback. One colleague thought perhaps the movie was making a moral comparison between gambling and drugs and that the two were "being given moral equivalence" and linked. Essentially, by tying gambling with drugs, the movie might stimulate a moral panic (cf. Cohen, 2002) that would focus negative feelings on the gaming industry. Another colleague felt that the movie was using casinos as a convenient metaphor for evil in a nonsensical way. Finally, a third colleague felt that the movie was "sidestepping" the issues of problem gambling, implicitly absolving the gaming business of any responsibility for the consequences of gambling in the context of this film. Essentially, the topic of drugs allows the movie to portray a casino owner as evil, without calling into question the morality of gambling per se. It would be interesting to see what message about gambling or casinos (if any) people walk away with from the film.

References

Ashley, D., Greenspun, A. (Producer), Preisler, G. (Producer & Director). (2004).
Lady killers [Motion picture]. United States: Touchstone.

Burke, J., Schiff, P., Foster, L., Amritraj, A., Hoberman, D. (Producers), & Bray, K. (Director) (2004).
Walking tall [Motion picture]. United States: MGM.

Briskin, M. (Producer), & Karlson, P. (Director) (1973).
Walking tall [Motion picture]. United States: Cinerama.

Cohen, S. (2002).

Folk devils and moral panics (3rd ed.). London: Routledge.

Goodman, R. (2003).
Grand illusions. In G. Reith (Ed.), *Gambling: Who wins? Who loses?* (pp. 88–95). Amherst, NY: Prometheus Books.

Weintraub, J. (producer), & Soderbergh, S. (director) (2001).
Oceans 11 [Motion picture]. United States: Warner Bros.

Manuscript history: Submitted: May 5, 2005. This article was not peer-reviewed.

For correspondence: Nigel Turner, PhD, Scientist, Centre for Addiction and Mental Health, 33 Russell Street, Toronto, Canada M5S 2S1. Phone (416) 535-8501, ext. 6063, fax (416) 595-6899, e-mail: Nigel_Turner@camh.net.

Competing interests: None declared.

Nigel Turner, PhD, is a research scientist at the Centre for Addiction and Mental Health (CAMH) in Toronto. He received his doctorate in cognitive psychology at the University of Western Ontario (1995) and has worked for CAMH for the past nine years. He has extensive experience in quantitative research methods including psychometrics, surveys, experimental studies, and computer simulations. Nigel has received grants from the National Center for Responsible Gaming and the Ontario Problem Gambling Research Centre and funding from the Ontario Ministry of Health. He has published in peer-reviewed journals and has given a large number of conference presentations. He is particularly interested in cognitive models of problem gambling.

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

contents | intro | research | brief report | clinical corner | opinion | reviews | letter

letters to the editor | submissions | links | archive | subscribe

Please note that these links will always point to the current issue of *JGI*. To navigate previous issues, use the sidebar links near the top of the page.

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net

JOURNAL OF GAMBLING ISSUES

contents
intro
research
brief report
clinical corner
opinion
reviews
letter
letters to the editor
submissions
links
archive
subscribe

letters

letter to the editor

September 29, 2005

In "Conceptual challenges from pathological gambling" (*Journal of Gambling Issues*, Issue 14, September 2005), Nigel Turner wrote, "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."

While I agree that the theory explaining addiction to gambling in terms of the hypnotic trance state that occurs as a consequence of gaming machine play does *not* account for people's addiction to betting on horses, dice, or poker or other card games, I have to challenge the notion that the part the hypnotic process plays in gaming machine addiction is not worthy of further exploration. We may find through further exploration that the hypnosis that players experience may very well explain both the cause and the harmful effect of people's addiction to gaming machines.

What I see as a fundamental flaw in research into gambling addiction these days is that very few researchers give any credence to the notion that the addiction-causing property that affects those who are addicted to gaming machines may not be the same property found to cause addiction to other forms of gambling, e.g., betting on horses or dice or even playing card games.

What I propose is that while the reward or reinforcement might be the same in all instances of gambling (i.e., the gaining of money), the addiction-causing property (i.e., what the gambler gets out of the activity) is not the same for all forms of gambling.

Consider for a moment the idea that the addictive in machine gambling *is* the trance state and the addictive in betting on horses is something else—the action or the win, for example. What if gaming machine addiction is as different from betting on horses, dice, poker, etc., as smoking cocaine is different from smoking

cigarettes?

If this proposal is correct, then *discounting theories about the hypnotic effect of machine gambling as invalid because they do not explain gambling on card games, is about as nonsensical as saying that because the effect nicotine has on the human brain cannot account for people's addiction to smoking cocaine (or vice versa), nicotine should not be considered the addictive property in smoking.*

While both smoking cigarettes and smoking cocaine involve the act of lighting a "cigarette," inhaling air through the "cigarette," and exhaling smoke, the ways the inhaled substances affect the chemistry of the brain are known to be different. Further, knowledge of the different effects the inhaled substances have on the psychobiology of people who inhale them ensures that the smoking of tobacco cigarettes and the smoking of cocaine are treated as two separate addictions—not as one—and that treatment in each case is tailored so that both those addicted to smoking cocaine and those addicted to smoking tobacco cigarettes have the best chance of quitting.

While gambling on horses and gambling on a gaming machine both involve gambling—the risking of money on a single event that has an uncertain outcome—and they both involve a contract between two parties (the punter and the house) in which one party predicts that the event being bet on will turn out one way and the other party predicts that the event will turn out a different way, I believe that what affects *and causes changes* to the psychobiology of the punter who bets on gaming machines may very well be the hypnotic effect the spinning of the reels has, while what affects and causes changes to the psychobiology of punters who bet on horses, dice, poker, etc., will prove to be something entirely different. The addictive in each case may in fact be different enough for addiction to gaming machines and addiction to horses, cards, dice, etc., to be considered two different addictions. Simply, addictions that outwardly appear the same and have the same effect on the addict's finances are otherwise as different as chalk and cheese.

Finally, as prescribing nicotine patches won't help a cocaine sufferer's withdrawal symptoms and administering Naloxone won't reverse the effects of inhaled nicotine, perhaps treatments for gambling addicts and gaming machine addicts need to be tailored to the gambler's specific addiction. Unfortunately, that won't happen while researchers and therapists alike continue to perceive that

- all gambling is the same,

- the "act" of gambling is the "addictive," and
- at least one common causative agent of gambling addiction has to explain *all* pathological gambling regardless of the differences between the various gambling products.

I, for one, would like to see addiction to gambling and addiction to gaming machines separated in both research and treatment. In fact, I would like to see dissimilar forms of gambling researched and treated as if they were separate addictions.

Perhaps this way, researchers might stop discounting as irrelevant the factors that gaming machine addicts keep reporting as significant in the creation of their addiction, clinicians might better understand what needs to be treated and what doesn't in each instance, service delivery and outcomes for those who seek assistance over their gambling might improve, and my need to write letters to all and sundry may dissipate.

Sue Pinkerton
Problem gambling research consultant
Secretary of Duty of Care, Inc.
Former gaming machine addict
Adelaide, South Australia, Australia

Reference

Turner, N. (2005). Conceptual challenges from pathological gambling. *Journal of Gambling Issues, 14*. Retrieved January 20, 2006, from http://www.camh.net/egambling/issue14/jgi_14_intro.html

issue 16 — april 2006

camh
Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

Editorial Contact: phil_lange@camh.net
Subscribe to our automated announcement list: gamble-on@lists.camh.net
Unsubscribe: gamble-off@lists.camh.net