A publication of the Centre for Addiction and Mental Health

Issue 10 February 2004 ISSN: 1494-5185

# eGambling

THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

## contents ISSUE 10 FEB 04

## Festschrift issue

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

## From the editor

Anniversaries evoke celebration. For this festschrift, 14 authors wrote articles and memorial essays to commemorate the 25th anniversary of the publication of Henry R. Lesieur's *The Chase: Career of the Compulsive Gambler* (1977; 2nd edition, 1984). A classic in gambling research, this work is appreciated for its innovation in taking a term from gamblers' own idiom – "chase" (as verb and noun) – and with solid sociological detail underpins its theses on the life course of gambling problems and how they are negotiated in daily life. Other dramatic terms from gamblers' own slang echo their hope and desperation: "the action," "getting even," "moving money," "illegal shit" [crime] and "hustling suckers." As in few other works on problem gambling, we almost feel that we are overhearing interviews with gamblers who wagered, won a lot and lost much in their gambling careers. Several authors in this issue note that the ethnographic genre adopted by Henry R. Lesieur in *The Chase* is still underutilized in gambling research.

Many of the authors cite the themes in the book that they especially appreciate. I would like to note that *The Chase* is an exemplar of openness and transparency about research methods. In Appendix A, "The Research Process," a wealth of detail about research techniques tells us what worked and what didn't. Few social science publications today offer this level of openness. There is no mystery about the sources for the depth of information available to the reader.

Editing this issue was especially rewarding for, in our correspondence, so many authors made it clear that they wanted to participate in order to honour Henry R. Lesieur.

I envy those who have yet to read this work. They can appreciate not only a landmark in gambling research, but, as well, can learn what makes a research classic remain important for decades.

### Postscript

I thank Keith Whyte (National Council on Problem Gambling) for his willing and invaluable aid in this effort.

Some readers may welcome an explanation about the concept of a festschrift. Formed of two German words for celebration and writing (*The*

*Canadian Oxford Dictionary*, 1998), a festschrift traditionally honours a senior academic for a lifetime of productive scholarship by offering a collection of articles written by appreciative colleagues. Some authors in any festschrift refer to the honouree's publications; others do not. This collection is somewhat unique in including peer-reviewed articles. A festschrift is a gift to the honoured scholar and so his or her work does not appear in it.

Phil Lange

Phil_Lange@camh.net



## Statement of purpose

The *Electronic Journal of Gambling Issues: eGambling (EJGI)* 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 *EJGI* 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.

## Reviewers

**Pat Erickson,** *Centre for Addiction and Mental Health, Toronto, Ontario, Canada*

**Jackie Ferris,** *Ferris Research, Toronto, Ontario, Canada*

**G. Ron Frisch,** *Problem Gambling Research Group, Dept of Psychology, University of Windsor, Ontario, Canada*

**Richard Govoni,** *Problem Gambling Research Group, Dept of Psychology, University of Windsor, Windsor, Ontario, Canada*

**Mark Griffiths**, *Psychology Division, Nottingham Trent University, Nottingham, U.K.*

**Rina Gupta,** *Youth Gambling Research & Treatment Clinic, Dept of Educational and Counselling Psychology, McGill University, Montreal, Quebec, Canada*

**David C. Hodgins,** *Addiction Centre, Foothills Medical Centre, Calgary, Alberta, Canada*

**Roger Horbay**, *Game Planit Interactive Corp., Toronto, Ontario, Canada*

**Alun C. Jackson**, *School of Social Work, University of Melbourne, Melbourne, New South Wales, Australia*

**Durand Jacobs**, *Loma Linda University Medical Center, Loma Linda, California, U.S.A.*

**Jeffrey Kassinove**, *Dept of Psychology, Monmouth University, West Long Branch, New Jersey, U.S.A.*

**David Korn,** *Dept. of Public Health Sciences, University of Toronto, Toronto, Ontario, Canada*

**Igor Kusyszyn**, *Dept. of Psychology, York University, Toronto, Ontario, Canada*

**Robert Ladouceur**, *École de Psychologie, Université Laval, Québec, Canada*

**Samuel Law,** *Baffin Regional Hospital, Iqaluit, Nunavut, Canada*

**Henry Lesieur,** *Dept of Psychiatry, Rhode Island Hospital, Providence, Rhode Island, U.S.A.*

**Vanessa López-Viets,** *Dept of Psychology, University of New Mexico, Albuquerque, New Mexico, U.S.A.*

**Ray MacNeil,** *Nova Scotia Department of Health, Halifax, Nova Scotia, Canada*

**Virginia McGowan**, *Addictions Counselling Program, The University of Lethbridge, Lethbridge, Alberta, Canada*

**Goldie Millar**, *Centre for Addiction and Mental Health, Toronto, Ontario, Canada*

**María Prieto**, *Dept. of Psychological Intervention, University P. Comillas, Madrid, Spain*

**Gerda Reith**, *Dept. of Sociology and Anthropology, University of Glasgow, Glasgow, Scotland*

**Robin Room**, *Centre for Social Research on Alcohol and Drugs, University of Stockholm, Stockholm, Sweden*

**issue 10— february 2004**


contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI.* 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES



*[This article prints out to about four pages.]*

# *A festschrift in honor of Henry R. Lesieur*

*By Rena M. Nora*
*University of Nevada School of Medicine*
*Las Vegas, Nevada, U.S.A.*
*E-mail: renanora@msn.com*

This festschrift is a tribute to Henry R. Lesieur and to his monumental contributions to studies in the field of pathological gambling. He is rightly considered to be one of the few preeminent researchers and writers who greatly influenced significant developments in the field of problem gambling during the past 30 years. Much of his empirical and conceptual work continues to be frequently cited and referenced; not only his major work *The Chase: Career of the Compulsive Gambler* (1977; 2nd edition, 1984), but, as well, 21 book chapters and 44 journal articles on crime, pathological gambling and impulse control disorders. He and Sheila B. Blume, MD, co-authored the South Oaks Gambling Screen (SOGS), an instrument for identifying pathological gamblers that has been translated in over 35 different languages and has been used internationally in surveys and treatment facilities. He is well known for his contributions as a member of the Working Group for the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV and DSM-IV-TR), Section on Impulse Control Disorders of the American Psychiatric Association. He is currently president of the Institute of Problem Gambling, a position he has held since 1997. He has given numerous presentations and trained other therapists in how to screen, assess and treat pathological gamblers, in the United States, Canada, the United Kingdom, Spain, Australia and New Zealand. He continues to serve as a consultant to attorneys and as a certified expert on pathological gambling.

I first met Henry in 1983 when we were both invited to conduct in-service training for the clinical staff at Rockland County Hospital in New York.

Through the years, I continue to be impressed and inspired by his evolving work and accomplishments, especially those of the past three decades, often characterized as the era of "medicalization" of pathological gambling.

Dr. Lesieur's knowledge and interest in the maladaptive behaviors and life impairments of problem gamblers date back to his teenage years. While he was a senior in high school and later at Providence College in Rhode Island, he worked in a gas station two miles from Narragansett Racetrack. His boss went to the racetrack frequently and asked Henry to work extra hours. His boss also used to get nervous about the money he placed on the horses and he and his wife argued about his gambling. During his five years working at the gas station, gambling was the main topic of conversation. Henry had interesting encounters with local bookmakers and their operations, men who sold stolen car parts, and the guys who passed bad checks because they had lost their money gambling. The gamblers, jockeys, trainers and horse owners who frequently came to the gas station provided Henry with his early "education" in gambling and in pathological gambling, and heightened his awareness about the consequences of this disorder.

In 1965, Dr. Lesieur met his wife, Helen, during a religious retreat. They married in 1968 just before his military tour of duty in Vietnam. His son Matthew was born while Henry was still in active duty in Vietnam. While overseas, he learned that his ex-boss had died of a heart attack while at the racetrack. This sparked his interest in problem gambling as a devastating disorder.

After returning to the United States, he studied and obtained a PhD from the University of Massachusetts, Amherst in 1976. Dr. Lesieur began as a sociologist and taught for 14 years as a professor in the department of sociology and anthropology at St. John's University, New York.

He was also visiting assistant professor at the University of Vermont and McGill University in Montreal, Quebec, Canada. He was a consultant and member of the Gambling Treatment Team at South Oaks Hospital, in Amityville, New York from 1983 to 1992. In 1992, Dr. Lesieur moved to Illinois and served as professor and chair of the department of criminal justice sciences at the Illinois State University.

By 1997, Dr. Lesieur had decided to return to the East Coast and eventually went to Massachusetts School of Professional Psychology where he obtained his second doctorate degree, this time in psychology. His psychology practicum involved hands-on care of mentally ill patients and their families at numerous facilities.

Dr. Lesieur has been distinguished with many awards, including the Robert L. Custer Award of the National Council on Problem Gambling for research and for founding the *Journal of Gambling Studies,* which he

edited for 12 years.

He also received the Professional Award given by the Connecticut Council on Problem Gambling for groundbreaking contributions to the field of problem gambling in the areas of research, assessment and public policy, and the Person of the Year Award from the New Jersey Council on Compulsive Gambling.

Dr. Lesieur currently treats pathological gamblers, spouses, partners and parents in the Rhode Island Gambling Treatment Program. With his involvement in research and clinical work, Dr. Lesieur feels his professional, personal and family life is in better balance. His son lives in Astoria, New York, and his daughter will soon move to Sonoma, California. Dr. Lesieur and his wife enjoy hiking, kayaking, attending theatre and dining out, horseback riding and going ballooning. It has been a long way from that gas station near the Narragansett Racetrack, but Dr. Lesieur's practice with problem gamblers can offer hope through practical and compassionate treatment to allow a functional and fulfilling life.

*Submitted: December 1, 2003*

**For correspondence:**
*Rena M. Nora, MD*
*Clinical Professor of Psychiatry,*
*University of Nevada School of Medicine*
2916 Sterling Cove Drive
*Las Vegas, Nevada, U.S.A. 89128*

*Tel: (702) 256-3419*
*Fax: (702) 256-5027*

*Email: renanora@msn.com*

*Rena M. Nora, MD is a clinical professor in the department of psychiatry of the University of Nevada School of Medicine. She is currently director of the intensive outpatient program for pathological gambling at the VA Southern Nevada Healthcare System in Las Vegas. Dr. Nora is also a commissioner of the Governor's Commission on Mental Health and Developmental Services and a member of the state board of examiners for alcohol, drug abuse and gambling counselors in Nevada. She serves on the board of directors of the National Council on Problem Gambling and is president of the National Gambling Counselor Certification Board. Dr. Nora's areas of expertise and experience include over 25 years of working with problem gamblers and their families and other special areas relating to suicide, posttraumatic stress disorder and administrative psychiatry.*


contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

**Essay**

*[This article prints out to about three pages.]*

# Sometimes you're just lucky: A memoir

*By Sheila B. Blume*
*South Oaks Foundation*
*Amityville, New York, U.S.A.*
*E-mail: sheila_blume@post.harvard.edu*

Throughout my career in psychiatry I have been lucky, as I was when I joined the staff of South Oaks Hospital, in Amityville, New York, in the fall of 1983. I was hired to run the adult addiction services at this lovely, privately owned psychiatric hospital that was founded in 1882. The addiction services included inpatient detoxification, dual diagnosis and rehab units and an extensive array of outpatient services. Of special interest to me was the newly organized treatment service for compulsive gamblers, which was integrated with other addiction services, but included a variety of separate activities. I had been interested in compulsive gambling since the late 1960s when one of my recovering alcoholic patients came to me for help with his gambling. But I had been heading the New York State Division of Alcoholism and Alcohol Abuse for the previous four years, and that state agency did not have jurisdiction over this area (it belonged to the Office of Mental Health).

The first person I met connected to the gambling program was Henry Lesieur. He was then professor of sociology at St. John's University in Queens and had been hired as a research consultant under the South Oaks Foundation, a not-for-profit educational and research group funded by the hospital. He had begun work on developing a screening tool that recognized gambling problems in clinical populations. I was delighted to be part of this project, as the lack of a simple way to

identify gambling problems made it difficult to convince my colleagues that they had unrecognized compulsive gamblers in their caseloads. DSM-III had been published only three years earlier, and offered, for the first time, standardized diagnostic criteria for "pathological" gambling (newly renamed to avoid confusion with obsessive-compulsive disorder). Interest was growing and a screening questionnaire was sorely needed.

Working with Henry was a great pleasure. He was both knowledgeable about gambling problems, and curious to learn more. Several research projects came out of the work at South Oaks, and we wrote a series of papers together. Henry later enrolled in the counseling course we gave in our South Oaks Institute of Alcoholism and Behavioral Addiction Studies (part of the Foundation), and served as an intern on the treatment service, treating both pathological gamblers and other people with addictions. Henry was unusual in that he was a good researcher and an effective counselor. Being a professor and an intern simultaneously did not seem to be a problem for Henry, who is a naturally warm and unpretentious person with a good sense of humor.

I recall working on the paper that launched the South Oaks Gambling Screen in 1987 (Lesieur & Blume, 1987). We sat in my office trying to figure out a catchy name for our product, one that would yield a pronounceable acronym. We originally hoped to produce something like MAST (Michigan Alcohol Screening Test), an easy name to use. We tried dozens of four- and five-letter combinations before ending up with SOGS. We hoped that it wouldn't remind people of something soggy, and it didn't. In fact, the SOGS has now been translated into 35 languages, from Africaans and Arabic to Xhosa and Zulu, and it is in use worldwide. That is a wonderful tribute to Henry's foresight.

Henry left New York and South Oaks, and I didn't get to see him often afterwards, but I have kept in touch with his career and his work. I feel fortunate to have known and worked with Henry, a true pioneer and a giant in our field.

## Reference

**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* (9),1184–1188.

*Submitted: June 2, 2003*

**For correspondence:**
*Sheila B. Blume, MD*
South Oaks Foundation

*400 Sunrise Highway*
*Amityville, NY USA 11701*

*Phone: (631) 264-4000*
Fax: (631) 264-5259

*E-mail: sheila_blume@post.harvard.edu*

*Sheila Blume, MD, is a pioneer in the field of addiction. She began specializing in alcoholism treatment in 1962 and developed services in the state of New York hospital system and served as New York State Commissioner for alcoholism from 1979–1983. She is a past president and long-time chair of the Public Policy Committee of the American Society of Addiction Medicine. She chaired the Committee on Treatment Services for Addicted Patients of the American Psychiatric Association, where she is now a member of the Council on Addiction Psychiatry. Dr. Blume became interested in gambling problems in the early 1970s. While at South Oaks (from 1983 until her retirement in 1998) she ran treatment services for pathological gamblers and collaborated with Henry Lesieur in a number of research projects.*

**issue 10 — february 2004**

contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

**Research**

*[This article prints out to about 10 pages.]*

# Prevention of gambling among youth: Increasing knowledge and modifying attitudes toward gambling

*By Marie-Pier Lavoie*
*Centre de recherche Université-Laval-Robert-Giffard*
*Beauport, Québec, Canada*
*Email: Marie-Pier.Lavoie@crulrg.ulaval.ca*

*Robert Ladouceur*
*École de Psychologie, Université Laval*
*Québec, Québec, Canada*

## Abstract

Research shows that gambling is a popular activity among youth. The more young people become involved in these activities, the more likely they are to develop irrational thoughts and habits related to gambling. In this study, 273 French-speaking students in grades 5 and 6 helped to test a video designed to (a) increase knowledge about gambling and (b) correct inaccurate knowledge. The effectiveness of the video was evaluated using two experimental conditions and one control condition. Analysis indicated that the

video significantly increased gambling knowledge and decreased errors in attitudes toward gambling. The implications of these results for the prevention of gambling problems are discussed.

**Key words:** prevention, gambling, youth, student, video

Today, gambling activities are easily accessible, even to youth. Television, radio, magazines, the Internet, and newspapers expose young people to gambling. Not surprisingly, studies show an increase in gambling in Canada and the United States (Shaffer, Hall & Van der Bilt, 1999). Some authors have reported that the proportion of youth who gamble at pathological levels is higher than that for adults (Arsenault, Ladouceur & Vitaro, 2001; Gupta & Derevensky, 2000; Stinchfield & Winters, 1998). One prevalence study found that 86% of children between the ages of 8 and 12 have already gambled at least once in their life (e.g. lottery, bingo, playing cards for money, bets on sport, wagering on specific events, video poker, and slot machines) and that 37.2% have gambled with an object that they considered to be valuable (Ladouceur, Dubé & Bujold, 1994).

According to Piaget's theory on cognitive development, children between the ages of 7 and 11, who are in the concrete operation stage, are limited in the extent of their abilities to solve concrete problems (Derevensky, Gupta & Cioppa, 1996; Piaget, 1950). The constant presence of chance in gambling would be less obvious to these children, thus resulting in an illusion that they are in control while playing (Derevensky et al., 1996). Considering that gambling behaviours appear early, children aged 10 to 13 represent a target group for the prevention of excessive gambling (Gupta & Derevensky, 1998; Ladouceur et al., 1994; Lesieur & Klein, 1987; Stinchfield & Winters, 1998). Indeed, a number of researchers agree that the implementation of prevention programs among youth, especially in grade school, is necessary. In fact, schools are a great context to easily reach children from different socio-economic backgrounds, origins and ages.

According to the cognitive therapeutic approach, loss of control in gambling results from holding misconceptions about the notions of chance and randomness. These cognitive errors lead gamblers to believe that they control the outcome of the game. They forget to take into account the independence of events when gambling. This illusion of control and these misconceptions are pivotal variables in the development and maintenance of gambling problems (Ladouceur, Sylvain, Boutin & Doucet, 2002). Based on this theory, it would be expected that modifying erroneous notions about gambling would affect gambling behaviour.

Providing information about gambling may be an effective way to help prevent gambling problems among youth. Such education could reduce their illusion of control over the game and would provide convincing evidence that strategies or skills can improve their outcomes. Ferland, Ladouceur and Vitaro (2002) conducted a study to evaluate the prevention of gambling problems in youth. They used 424 students from grades 7 and 8 to evaluate the effectiveness of a video on reducing gambling, on increasing gambling knowledge, and on

decreasing erroneous perceptions about gambling. Their findings indicate that the video significantly improved subjects' knowledge about gambling and corrected their misconceptions about the notions of chance and randomness.

The goal of the present study is to evaluate the effectiveness of a video whose aim is to modify erroneous beliefs and attitudes toward gambling among students in grades 5 and 6. The video targeted several misconceptions, the illusion of control, and cognitive errors underlying this activity. This type of intervention was chosen because it is a medium that can capture students' attention and interest. Video format is also an inexpensive tool that can reach many students simultaneously. Furthermore, using a video is easy within a school setting and makes it possible to standardize the information provided.

Three classroom conditions were used: (1) Discussion + Video, a 20-minute information session and presentation of the video; (2) Video, a presentation of the video only; and (3) Control, a control group with no information and no video. It was hypothesized that the first two conditions would be significantly better than the control condition at increasing knowledge and reducing attitude errors toward gambling. It was also hypothesized that the Discussion + Video condition would result in a higher level of knowledge and fewer attitudinal errors than the Video condition alone. We also had two research questions: (1) Do the students like the video? (2) Do the students understand the video?

## Method

### Participants

Participants (n = 273) were grade 5 and 6 French-speaking students from two schools in the Quebec City area. Before the study began, a consent form was sent to parents and only those students whose parents agreed were allowed to participate. Grade 5 students accounted for 49.1% of the participants, and students in grade 6 accounted for 50.9%. Males constituted 50.2% (n = 137) of the participants and the mean age of all participants was 11.53 years old (range from 10 to 13). There were no gender or age differences between the groups. Each class was randomly assigned to one of the three groups using a random number table.

### Experimental conditions

Three groups were used. All completed the same pre- and postquestionnaires. Four psychology students administered the experimental and control conditions.

1. Discussion + Video condition (n = 105): The students received information about gambling. They were also invited to ask questions and to express their opinions, even if they did not share the same views as the discussion leader or their teacher. The discussion includes the following information and activities:

a) Using examples of gambling activities (bingo, lottery, video poker, etc.): The students were taught the main characteristics of gambling activities.

b) Illusion of control: This activity helped students realize that it is impossible to control the outcome of the game. The students were also shown that in gambling, practice cannot improve their performance in these specific games.

c) Using lottery gaming activities: The discussion leader provided examples of erroneous beliefs and the way the illusion of control operates. Youth were invited to identify the misconception in these scenarios (superstition, lucky charm, choosing numbers, etc.).

d) The discussion ended with a short question period and a brief summary of the concepts explained. During the 20-minute information session, the discussion leader answered questions raised by the students. He or she also corrected any misconceptions they may have presented. Usually, clarifications were provided through examples drawn from the students' questions. After the period of discussion, students watched a video. This video was developed by the research team with assistance from a professional scriptwriter. The video is based on a cognitive-behavioural theoretical model. The 20-minute video is about "Lucky," a sarcastic clown who has lost all his money gambling. In the video, he and his assistant present a show about gambling at school. Throughout the video, Lucky explains the differences between gambling and games of skill. He also talks about the chances of winning, the illusion of control, randomness, lucky charms, and the uselessness of winning strategies.

2. Video condition (n = 73): Under this condition, the students watched the 20-minute video.

3. Control condition (n = 95): This group was neither provided with information nor shown the video. The control group completed the preexperimental questionnaire at the beginning of the class and the postexperimental questionnaire after they had a break within class. However, to thank the students for their participation and for ethical considerations, they were shown the video after they had completed the postquestionnaire.

**Procedure**

The pretest questionnaire was first completed by all experimental and control groups. In the first condition, the discussion and video took place after the questionnaire. The video alone was shown in the second condition, and not presented at all in the control condition. The posttest questionnaire was administered to all participants after the recess.

**Instruments**

A short questionnaire examining knowledge and misconceptions about gambling was used. A total of seven questions were used to assess attitudes

about gambling, and nine questions were used to assess knowledge (see Appendix A for an English version of the questionnaire). The following are examples of questions targeting knowledge (K) and attitude (A):

"I don't have more chances to win at the lottery if I choose my numbers myself" (K).

"If I gamble often at a game of chance and money, I can become good and win more money" (A).

Knowledge questions refer to information about gambling activities, while attitude questions offer statements providing examples of attitudes toward gambling. All items could be answered by "I totally disagree," "I disagree," "I agree," or "I totally agree" (see Ferland et al., 2002).

The present instrument was developed by Gaboury and Ladouceur (1993) and later adapted by Ferland et al. (2002). This questionnaire is based on a cognitive-behavioural model. The items were reformulated after verifying the comprehension level of each item among grade 4 students and grade 5 teachers. The attitude score could vary from 0 (no errors) to 7 (all wrong answers), while the knowledge score could vary from 0 (no errors) to 9 (all wrong answers). The total errors for the attitude questions and the total errors for the knowledge questions were used as dependent variables. The reliability of the knowledge scale is excellent with Cronbach's alpha at.74, while the reliability of attitude scale is moderate with Cronbach's alpha at.58. This questionnaire is not a validated instrument.

## Results

Analyses of variance show significant differences between the three conditions at pretest for age ($F(2.270) = 13.47$, $p < .001$), number of attitude errors ($F(2.269) = 5.04$, $p < .01$), and knowledge ($F(2.269) = 5.70$, $p < .005$). A Chi-square test revealed no significant differences between the three conditions regarding participants' gender. To verify the first hypothesis, an analysis of covariance was conducted on the results of each score at posttest by using the corresponding results at pretest and age as covariates.

### Attitudes

An ANCOVA revealed a significant effect for Group ($F(2.267) = 7.05$, $p < .005$). The contrast analysis revealed that the two experimental groups decreased their attitudinal errors significantly more than did the control group. This suggests that the Discussion + Video and Video conditions were significantly better than the Control group at modifying attitudes toward gambling. However, there were no significant differences between the Discussion + Video and Video conditions.

### Knowledge

The covariance analysis computed for knowledge results revealed a significant Group effect (F(2.266) = 7.25, p <.005). The contrast analysis revealed that the two experimental conditions were significantly more effective at decreasing the number of knowledge errors than with the control group. The two experimental conditions had a similar effect on the number of knowledge errors. The mean numbers of attitude and knowledge errors at pre- and postintervention for all conditions are presented in Table 1.

## Table 1

### Mean number of attitude and knowledge errors at pre- and postintervention

| | Attitude | | | | Knowledge | | | |
|---|---|---|---|---|---|---|---|---|
| | Preintervention | | Postintervention | | Preintervention | | Postintervention | |
| Groups | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Discussion + Video | 4.56 | 1.82 | 3.76 | 2.32 | 6.19 | 2.11 | 5.14 | 2.19 |
| Video | 4.22 | 1.77 | 3.33 | 2.11 | 5.41 | 1.70 | 4.29 | 2.00 |
| Control | 3.71 | 1.70 | 3.69 | 1.95 | 5.32 | 1.80 | 5.26 | 2.20 |

Note. Maximum scores = 7 (all wrong answers) for attitude, and 9 (all wrong answers) for knowledge.

Note: SD = standard deviation.

## Discussion

The purpose of this study was to evaluate whether the video "Lucky" helped modify knowledge and attitudes toward gambling among students in grades 5 and 6. The results demonstrate that a video designed to provide specific information about gambling is a meaningful medium for use among grade 5 and 6 students. This finding supports our first hypothesis that a video-based intervention would have the positive effect of increasing knowledge and modifying attitudes toward gambling among youth aged between 10 and 13 years. This result confirms the findings reported by Ferland et al. (2002) about the efficacy of this video for increasing knowledge and reducing misconceptions about gambling among students in grades 7 and 8.

On the other hand, the second hypothesis, that Discussion + Video would increase knowledge and improve attitudes more than the Video condition, was not confirmed. These findings show that a video alone is as effective as when combined with discussion. This could be explained by the similarity between the two interventions. Discussion activities should explain different concepts than those shown in the video. However, it could be that discussion improves the durability of the change. It would be interesting to examine the short-term effects to see the impact of discussion. Discussion might also result in a more extensive or deep change in attitude and knowledge errors. These possibilities could be tested in future studies.

These findings show that the video is well understood and appropriate for groups of students between 10 and 13 years old. As mentioned earlier, young people are a great target group for the application of preventative intervention methods for gambling (Gupta & Derevensky, 1998; Ladouceur et al., 1994; Lesieur & Klein, 1987; Stinchfield & Winters, 1998). Furthermore, as the cognitive approach suggests, replacing a person's beliefs about gambling with more factual knowledge decreases interest in gambling and has an effect on gambling attitudes. Overall, the results of this study show that the video "Lucky" is an effective medium for modifying students' knowledge and attitudes toward gambling.

Further research should be extended to include grade 4 students. The long-term effect of increased knowledge and modified attitude should also be explored. It would be important to evaluate the long-term impact of these positive effects on gambling. The findings from this study support the effectiveness of the video as an intervention tool for preventing gambling problems in youth and suggest that it is possible to incorporate the video into a school setting in order to increase awareness about the negative consequences of gambling. Correcting erroneous perceptions toward the notions of chance and randomness may be the first step in the prevention of gambling problems among youth.

## References

**Arsenault, F., Ladouceur, R. & Vitaro, F. (2001).**
Consommation de psychotropes et jeux de hasard: Prévalence, coexistence et conséquences. *Canadian Psychology/Psychologie Canadienne, 42,* 173–184.

**Derevensky, J.L., Gupta, R. & Cioppa, D.G. (1996).**
A developmental perspective of gambling behavior in children and adolescents. *Journal of Gambling Studies, 12,* 49–66

**Ferland, F., Ladouceur, R. & Vitaro, F. (2002).**
Prevention of problem gambling: Modifying misconception and increasing knowledge. *Journal of Gambling Studies, 18,* 19–30

**Gaboury, A. & Ladouceur, R. (1993).**
Evaluation of a prevention program for pathological gambling among adolescents. *Journal of Primary Prevention, 14* (1), 21–28

**Gupta, R. & Derevensky, J.L. (1998).**
Adolescent gambling behavior: A prevalence study and examination of the correlates associated with problem gambling. *Journal of Gambling Studies, 14,* 319–344.

**Gupta, R. & Derevensky, J.L. (2000).**
Adolescents with gambling problems: From research to treatment. *Journal of Gambling Studies, 1*6, 315–342.

**Ladouceur, R., Dubé, D. & Bujold, A. (1994).**

Gambling among primary school students. *Journal of Gambling Studies, 10,* 363–370.

**Ladouceur, R., Sylvain, C., Boutin, C. & Doucet, C. (2002).**
*Understanding and Treating Pathological Gamblers.* London: Wiley.

**Lesieur, H.R. & Klein, R. (1987).**
Pathological gambling among high school students. *Addictive Behaviors, 12,* 129–135.

**Piaget, J. (1950).**
*The Psychology of Intelligence.* London: Routledge & Kegan Paul

**Shaffer, H.J., Hall, M.N. & Van der Bilt, J. (1999).**
Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health, 89,* 1369–1376.

**Stinchfield, R. & Winters, K.C. (1998).**
Gambling and problem gambling among youth. *Annals of the American Academy of Political and Social Sciences, 556,* 172–185.

**APPENDIX A:**

---

QUESTIONNAIRE OF ATTITUDES AND KNOWLEDGE ABOUT GAMBLING (ENGLISH VERSION)

1. When I'm betting, I must know the tricks and strategies if I want to win.
2. I don't have more chances to win at the lottery if I choose my numbers myself.
3. Betting is a good way to obtain money quickly.
4. Betting money is a good way to take up a challenge.
5. Anyone can stop betting easily.
6. Betting money can become a problem like alcoholism and drug addiction.
7. Buying lottery tickets is a type of gambling.
8. All pinball machines and electronic games are not considered as gambling activities.
9. Gamblers have no control on the gains and losses in a gambling activity.
10. At lottery, choosing numbers based on the numbers that came out most

often during the year can be a good way to increase your chances to win.

11. It is impossible to predict chance.
12. When I play bingo, I have more chances of winning if I bring my lucky charm with me.
13. It is impossible to predict the winner or the loser at any gambling activity.
14. If I lose while gambling, it's because I played badly.
15. If I gamble often at a game of chance and money, I can become good and win more money.
16. If I play lottery 6/49, I have more chances to win if I choose my lucky numbers.

Answers: I totally disagree; I disagree; I agree; I totally agree

Attitude (7 questions): 1, 3, 4, 5, 12, 14, 15

Knowledge (9 questions): 2, 6, 7, 8, 9, 10, 11, 13, 16

---

**Acknowledgements:** We wish to thank Audrey Blouin, Emmanuelle Boulianne, Hélène Huot, and Marie-Eve Blais for their assistance in conducting the study. This study was funded by a grant from Loto-Québec.

*This article was peer-reviewed.*
*Submitted: May 29, 2003*
*Accepted: December 19, 2003*

**For correspondence:**
*Robert Ladouceur, PhD*
*École de psychologie, Université Laval*
*Québec, QC G1K 7P4*
*Canada*
*Phone: (418) 656-3996*
*Fax: (418) 656-3646*
*Email: Robert.Ladouceur@psy.ulaval.ca*

*Marie-Pier Lavoie, MPs, is a psychologist and a doctoral student at Laval-University- Robert-Giffard Research Centre (Quebec City). During her studies in the department of psychology at this university she gained expertise in such varied fields as gambling problems in youth, interventions with teenagers suffering from social phobias, and the effects of multiple sclerosis on patients and family. During these studies she obtained a solid foundation in the cognitive-behavioural approach. Her current thesis topic is in experimental medicine with research on the origin of seasonal affective disorder.*

*Robert Ladouceur, PhD, is a professor of psychology at Laval University (Quebec City). After his doctoral studies, he completed a postdoctoral fellowship at Temple University (Philadelphia). His work on gambling is esteemed internationally. His research and treatment model focuses on the cognitive variables involved in acquiring and maintaining gambling behaviours and on the cognitive distortions and erroneous perceptions underlying gambling problems. His research led to treatment strategies for problem gambling that target, challenge, and modify erroneous beliefs about chance and probabilities. He was invited twice to present his work to the National Gambling Impact Study Commission, the U.S. presidential commission on gambling. In 1996, he received the Research Award from the National Council on Problem Gambling. In 2003, he was awarded the Senior Research Award from the National Center for Responsible Gambling.*

**issue 10 — february 2004**

contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI.* 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES



**Research theory**

*[This article prints out to about 21 pages.]*

# Gambling as activity: Subcultural life-worlds, personal intrigues and persistent involvements [1]

*By Robert Prus*
*Dept. of Sociology*
*University of Waterloo*
*Waterloo, Ontario, Canada*
*E-mail: prus@uwaterloo.ca*

## Abstract

Although gambling is often envisioned as a disreputable if not also a personally and socially destructive realm of endeavor, this paper approaches gambling as a realm of activity in a more generic, pluralist sense. Employing Henry Lesieur's (1977) portrayal of gambling in *The Chase* as an ethnographic focal point, this paper not only attempts to "permeate the deviant mystique" that surrounds gambling, but also endeavors to provide a set of conceptual, methodological and textual resources that could inform the study of gambling or other involvements of a parallel sort. Thus, while appreciating the relevance of Henry Lesieur's *The Chase* for the study of gambling more specifically, this statement also draws attention to the contributions (envisioning Henry Lesieur's text as a prototype) that more sustained and detailed ethnographic studies of gambling as activity can make to the broader social science enterprise. In a related way, whereas more intense gambling often is explained as an individual quality (or affliction), this statement examines gambling more centrally as a subcultural process. Thus, gambling is approached as situated, career, fascinated, and persistent instances of activity that can be adequately understood only within a socially constituted life-world.

## Introduction

In contrast to those who suppose or claim that gambling is one thing or is characterized by a particular kind of motivation, this paper considers gambling as but another realm of human endeavor that is best understood

as *activity.* Thus, while not ignoring or dispensing with the mystique that is associated with gambling or other realms of activity (e.g. drinking, drug use or smoking) in which people's behaviors often are described in compulsive or addictive terms, this statement provides a conceptual scheme that is attentive to the ways that people become involved and develop more intensive involvements and habituations in particular fields of activity as instances of community life in the making.

Those interested in gambling more specifically may find this paper instructive because it brings a larger set of conceptual, methodological and textual resources into the study of this phenomenon. However, it also should be appreciated that the careful, detailed study of gambling as activity can contribute notably to the broader social science venture. Thus, while indicating how the study of gambling may be informed by a more generic analysis of activity, this paper also shows how the study of gambling (especially when approached in the ethnographic style of Henry Lesieur) can contribute substantially to the study of human group life more generally.

In developing this statement, I will be building on Prus and Grills' (2003) *The Deviant Mystique,* [2] but will concentrate on Henry Lesieur's (1977) *The Chase* as an ethnographic focal point. While the Prus and Grills text provides the primary conceptual frame within which the present statement is developed, Lesieur's study of racetrack gamblers represents an especially instructive examination of one realm of gambling activity. [3] Still, it is not my intent to review either text in a more comprehensive sense.

Since all theory makes certain assumptions about the subject matter at hand, I will briefly outline the conceptual and methodological framework that informs the present statement. In a related way, although I am examining gambling as a social scientist, the approach taken here is notably different from the many studies in the social sciences in which analysts ask "why does," "what makes," or "what causes" someone to do something. Thus, instead of searching for sets of factors or variables that might correlate with gambling or other problematic matters such as drinking, smoking or delinquency, the present emphasis is on the ways in which people actually engage in the particular activities under consideration. This means attending to when and how people do things, as agents, both on their own and in conjunction with others. The idea is to study the things that people actually do in great detail and to see exactly how they accomplish these activities.

Although Henry Lesieur's (1977) *The Chase* is only one of a much larger corpus of ethnographic studies that focus on the actualities of human lived experience, the conceptual materials outlined here were developed (see Prus, 1996, 1997) mindfully of Lesieur's study of the life-world of race-track gamblers. Notably, whereas Henry Lesieur's *The Chase* may be best known as a study of gambling, Lesieur's contributions to the broader study of human group life (i.e. the study of human knowing and acting) are no

less consequential.

Indeed, when situated in more generic terms, as part of a broader analytic consideration of "anyone doing anything," Lesieur's study assumes a value well beyond its more specific focus on gambling. By developing comparisons (attending to similarities and differences) among studies of people's involvements on various realms of activity such as gambling, drinking, shopping, religion, street or biker gangs or computer-related subcultures, it is possible to use particular studies such as *The Chase* to develop, inform, test and reformulate concepts that have a transsituational or a transcontextual relevance. One also may use these studies as a basis for assessing the adequacy of instances of research conducted in other settings as well as suggesting instructive points of inquiry in newly emergent or ongoing inquiries.

Thus, rather than minimize the relevance of Lesieur's study for those interested in understanding people's involvements in gambling, the present statement extends Henry Lesieur's materials in conceptual terms and helps illustrate the importance of developing ethnographic studies of the sort he has given us in yet other areas of community life.

## Establishing the premises

Readers looking for "quick fixes" or simplistic explanations (and solutions) of gambling or other problematic behaviors might prefer to dispense with a consideration of the premises or assumptions that inform the present analysis of gambling or other activities. However, more adequate scholarship requires that we establish a shared frame of reference. The approach taken here is *symbolic interaction* (Mead, 1934; Blumer, 1969; Prus, 1996; Prus & Grills, 2003), a sociological (and ethnographic) extension of American pragmatist philosophy. In contrast to those who argue that reality is (either) an objective or subjective phenomenon, the interactionists take the viewpoint that humanly known realities are enacted, intersubjective essences. From this viewpoint, things become known (and meaningful) only within the context of ongoing activity and linguistic interchange.

Expressed in other words, things do not have inherent meanings but are identified and given meanings as "objects" as people attend to, name, define and otherwise act toward those objects. Further, although people may envision and act toward particular things in many different ways, it is only in adopting the perspectives of one or more of the groups with whom they associate that people as (purposive) agents may begin to develop lines of action toward particular things that are deemed meaningful within the human community.

It also is in the process of taking on the viewpoint of the (community-based) other and in defining and acting toward things in terms that are considered meaningful to the group that people may begin to see

themselves as objects. It is in adopting the viewpoint(s) of their associates that people, as individuals, achieve notions of awareness, reflectivity, agency and self. Likewise, it is in adopting the perspective(s) of the group that people learn that they are both connected with, and yet also somewhat distinct from, others. Thus, it is only as people participate in the language of the other that they become able to act, speak and think independently.

Whereas human activity is characterized by notions of meaning, intention and purpose, along with people's related senses of self and agency, there also is the matter of people coming to terms with the resistances and limitations that they encounter in the physical environment. This includes the presence and activities of other people as well as the physiological and emotional sensations that become defined as meaningful qualities within the group settings at hand. Further, while others may intervene in one's activities in various ways, thereby establishing an ongoing series of collectively articulated contexts, all of the activities in which people engage take place in process terms and are characterized by developmental flows.

Methodologically, the interactionists rely primarily on ethnographic research as the means of achieving "intimate familiarity" with their human subject matter (Blumer, 1969). Utilizing observation, participant observation and extended, open-ended interviewing, and focusing on the humanly experienced life-worlds in which people do things, the interactionists insist on the importance of examining people's activities in thorough, sustained detail. The emphasis, thus, is on the ways that the people involved make sense of and engage their situations in minded, adjustive, processual, enacted terms.

Although theoretical understandings and methodologies of the preceding sorts are apt to seem reasonable, if not fundamental, to most readers, it might be observed that most research in the social sciences has disregarded these notions in the quest to find factors that correlate with certain outcomes. Thus, in emphasizing such things such as social class, educational levels, religiosity, attitudes, needs and personality types, most researchers and analysts have overlooked the things that people actually do (i.e. the what and how of human group life).

The "hands on" approaches that most social workers, counsellors and others adopting rehabilitative stances to problematic behaviors adopt generally tend to be quite different from those of the structuralist (quantitative) social scientists just referenced. However, case workers and other "agents of control" also have contributed little to the study of human lived experience. Not only are most of their "theories" apt to reflect eclectic mixes of psychology, sociology, moralisms, protectionisms and optimisms, but these agents of control also seldom examine the activities and life-worlds of those with whom they work in careful, open and sustained manners. Counsellors, social workers, and others assuming rehabilitation orientations may be well intentioned and may claim more direct contact

with deviance and morality. However, those invoking interventionist stances generally lack the necessary conceptual and methodological resources for studying human behavior in more extended naturalistic and analytic terms and seldom deal with their subject matter in more open, distinctively scholarly (vs. moralistic or remedial emphases) terms.

To learn about gambling or any other realm of human endeavor, researchers require a theory and a methodology that would allow them to study these and related aspects of group life "in the making" in extended detail; to examine the ways that people engage (and experience) the situations in which they find themselves in the "here and now" of ongoing group life. It is here that symbolic interaction, with its ethnographic emphasis on observation, participant observation and extended, open-ended interviewing, has so much to offer.

Still, rather than just pile up a series of isolated studies, one needs something more to make ethnographic research projects more valuable — one requires concepts that are attentive to the enacted features of the situation and yet have a transcontextual or generic quality. Taking this approach enables scholars to locate particular ethnographic studies in comparative, analytic terms. This represents a clear advantage to interactionist scholarship, with its emphasis on developing more generic understandings of all of the enacted features of human group life. Thus, while focusing on gambling in more immediate terms, the interactionist paradigm allows scholars to develop a more generic, research-informed approach to the study of people's involvements in the life-worlds characterized by these risk-taking ventures.

Although the material following is necessarily cryptic, I will address gambling as *activity.* More specifically, this means focusing on gambling as (a) a community-enabled, (b) situated, (c) career, (d) fascinated, and (e) emotionally-engaged activity. In the process, I will try to be particularly mindful of the subcultures in which gambling activities are more central as well as people's hopes, successes and failures.

While focusing on activity and examining the things people do in detailed, developmental terms, it also is essential that scholars examining activities that have been defined as disreputable or otherwise deemed troublesome or problematic come to terms with "the deviant mystique":

> Given the fears, indignations, intrigues and other dramatizations associated with deviance in the community, it is often difficult for social scientists to approach the study of deviance with the same care and dedication that they might use to examine other subject matters. Nevertheless, the study of deviance very much requires the same sort of conscientious and open-minded conceptual and methodological rigor that one would employ in other realms of inquiry.

> In order to achieve this analytical plane, it is necessary to first *overcome* or *permeate the deviant mystique* – to look past or through the condemnations, repulsions, fascinations and other auras that surround deviance and concentrating, explicitly and intensively, on the ways in which the people involved in all aspects of the deviance process work out their activities in conjunction with others in the community. This requires a scholarly attentiveness to all aspects of human enterprise, including notions of interpretation and definition, activity and adjustment, influence and resistance, intimacy and distancing, control and tolerance, as well as related matters such as cooperation, conflict, compromise, negotiation, and renegotiation.
>
> This is not to deny the importance of "the deviant mystique" as a phenomenon of study, but rather to emphasize the importance of researchers and analysts not becoming personally caught up or entrapped in moralistic or sensationalistic aspects of the sociological puzzle. Comprehending the mystique that surrounds deviance is an essential aspect of the sociological venture, but an appreciation of this aura is best achieved through a detailed understanding of the community enterprise entailed in the production of deviance" (Prus & Grills, 2003, p. 9).

Whereas Prus and Grills address the processes and problematics of the deviant mystique in some detail, acknowledging the many people who become involved in this essence as well as the implications of the deviant mystique for the study of people's involvements and careers in deviance more generally, the present statement concentrates more centrally on gambling as a realm of involvement. Further, in contrast to those who (a) consider gambling to be a deviant or troublesome endeavor and (b) define and act toward those thusly involved as deviants or troublesome cases, the emphasis here is on examining in nonjudgmental manners the ways that people engage instances of gambling as activity.

Although Henry Lesieur's *The Chase* is primarily a study of horse-race gambling, it also represents a particularly instructive reference point for comprehending other forms of gambling. This would include bingo, poker and other overtly competitive betting events as well as seemingly more solitary gambling involvements such as those associated with the purchases of lottery tickets, playing the slots and electronic online betting. [4]

## Gambling as community-enabled activity

As with the other things that people do, gambling is best comprehended in terms of ongoing community life. One cannot understand gambling or any other form of meaningful human behavior except within the context of

group life. The study of gambling may afford researchers and analysts some valuable avenues for learning about human group life more generally. However, only by learning more about the nature of community life will one be better able to understand gambling as activity and also permeate the "deviant mystique" that enshrouds so much of the speculation, research, analysis and treatment directed toward gambling and other behaviors deemed troublesome in the larger community.

When approached from an interactionist viewpoint, one of the major contributions of Henry Lesieur's *The Chase* is that it examines gambling as community activity. Likewise, to his credit, Lesieur does not vaguely invoke "society" as a (simplistic) causal force but indicates in extended detail the ways in which gambling and gamblers are embedded in a variety of activities and relationships that extend well beyond the immediate settings or contexts in which bets are made.

In a related point, instead of representing gambling as the (mindless) outcomes or products of certain sociological or psychological forces, Henry Lesieur examines the things that people actually do as gamblers. Thus, while acknowledging the various intrigues, habits, sensations, and emotions that people may experience in the process of gambling, Lesieur also depicts people as acting, thinking, strategizing, assessing, communicating beings who knowingly engage in what he also indicates is a rather extensive, socially constituted life-world.

Lesieur makes no claims about people acting wisely in the longer or shorter terms, but he does show us, in detail, the ways in which people attempt to make sense of and manage the situations in which they find themselves.

That some readers or other people might condemn gambling involvements, say that people should make other choices, or offer "better advice," does nothing to explain gamblers' lives and activities. Likewise, to say that gambling can be addictive, compulsive or deeply engrossing does nothing to explain the activity. As we know, people have the capacity to become engrossed in, and habituated to, all manners of activities, desires, and objects — from sports, music, television, and the internet, to business, love and religion.

Instead of trying to explain people's behaviors by imposing (external) moralities and rationalities on those involved in particular realms of endeavor, what is required are more direct, open and extended considerations of (a) the particular activities in which people participate; (b) the related life-worlds or subcultures (Prus, 1997; Prus & Grills, 2003) that people develop around these realms of endeavor; and (c) detailed examinations of the ways in which people's activities and relationships in these life-worlds spill-over or otherwise become integrated into other aspects of those people's lives.

This emphasis on gambling as a community endeavor also encourages scholars to consider the roles that an assortment of other people may assume in developing and sustaining the forums in which gambling takes place as well as facilitating, participating and obstructing people's involvements in gambling activities. Readers may refer to Prus and Grills (2003) for a more extended analysis of the various "theaters of operation" that develop around people's involvements in particular realms of deviance as well as a fuller consideration of the ways in which a wide array of others enter into the activities and life-worlds of those involved in particular discredited ventures. Attending to the life-worlds of racetrack gamblers, Lesieur's *The Chase* instructively depicts some of the parameters of participants' associations with others, such as gamblers' relationships with bookies, loan sharks, spouses and counsellors.

There is much more to be considered about gambling as a broader community-based and enabled realm of endeavor, but it also is essential that gambling be understood as activity "in the making." By attending to gambling as activity with situated, career, fascinated and emotional dimensions, it may be possible to develop a framework for studying and comprehending gambling in ways that are more consistent with the things people actually do and experience as gamblers.

## Gambling as situated activity

By focusing on gambling as situated activity or as instances of minded behaviors and interchanges that are accomplished in the "here and now" of community life, scholars may locate their research and analysis in the very settings in which things take place. Lesieur's *The Chase* also addresses gambling as a more situated realm of endeavor by attending to the ways in which participants anticipate and prepare for gambling events and forthcoming instances within, as well as the ways in which gamblers define, engage and adjust to the contingencies of the more exacting present, and subsequently make shorter- and longer-term tactical accommodations, mindful of things that have happened in the past.

This attentiveness to situated activity does not disregard people's linkages with others. Thus, even when people become deeply engrossed in particular instances of activity, these instances (as with people focusing intensely on their work or studies, for example) are to be understood within somewhat broader, but still situated frames.

Even the people who seem to be exclusively focused on gambling are still tied into other people in various ways, through money, goods, services, companionship, prestige, and desires for success. As self-reflective beings, people may be able to sustain specific sets of behaviors on their own for extended periods of time. However, it is essential that researchers and analysts be highly mindful of the meanings that the participants assign to their broader circumstances, activities and shifting situations along the way.

It should not be assumed that the first instance of placing a bet has the same meaning as the next one, and so forth; or the first bet at an event is the same as the next or last one. Indeed, as Lesieur observes, it is only after losing and "getting stuck" (experiencing closure and looking for a solution) in either the shorter- or longer-term that instances of "the chase" are apt be engaged with greater intensity.

Further, not only may people define each instance of betting, winning, losing and any related matters (e.g. companions, money, work) differently as they work their ways through the situations at hand, but participants also may envision any of these aspects of gambling in mixed and possibly contradictory terms. Involvements, therefore, may be seen as possible mixes of desperation, excitement, strategic choices and foolishness. Thus, while it is imperative that analysts avoid assigning their own meanings and moralities (or those of third party others) to the people involved in gambling in developing explanations of those activities, it also is important that scholars be attentive to the shifting and mixed ways that the participants may define their own involvements and experiences over time.

Likewise, while people may gamble or bet on a seemingly unlimited field of outcomes and may do so in a wide variety of forums, even gambling that is confined to very specific contexts is not one thing. Gambling does not have singular or invariant meanings, even for particular participants.

Although matters of these sorts may seem obvious as Lesieur develops his text, readers may be reminded that these situated, minded, enacted and adjustive features are almost entirely neglected by a great many social scientists and other students of gambling. Indeed, many social scientists, agents of control and members of the general public almost entirely disregard the study of these behaviors in their quest to identify psychological and sociological factors correlated with people's gambling behaviors and/or impose moral and remedial frames on the participants and their activities. Readers will find extended discussions of people's situated participation in both solitary activities and collective events in Prus and Grills (2003), but Lesieur provides a particularly valuable set of illustrations of gambling as situated activity in the race-track setting.

## Gambling as career-related activity

People's "careers of involvement" may be seen as consisting of all of the things that participants do with respect to specific fields of activity or an extended linkaging of all of the "here and now" instances of particular sets of activity in which individuals engage. While an appreciation of these instances or the "here and now" occasions in which people do things is essential for a more adequate conceptualization of any field of involvement, it also is instructive to examine people's participation in specific realms of activity in more extended temporal terms.

Thus, whereas people's careers in particular fields of activity may range from the most fleeting of involvements to life-long ventures, we may ask about the ways people become involved in situations and when and how they continue. We also may ask when and how they become disengaged from, and possibly, re-engaged in these endeavors. Like (a) the notion of gambling as a broader community phenomenon and (b) the situated nature of people's involvements in gambling, (c) the career process has been largely neglected by those seeking factor- or variable-based predictions and explanations of gambling or other realms of deviant behavior.

Readers may refer to Prus and Grills for an extended consideration of people's careers in disreputable fields of endeavor in both solitary and subcultural contexts, but students of gambling are particularly fortunate to have Henry Lesieur's *The Chase* as an instructive prototype. Indeed, as Lesieur illustrates at considerable length, the concept of career is pivotal for comprehending people's involvements.

Gambling may be a situated activity but like so many other roles that people might engage over time (e.g. as salespeople, students, parents, scientists), gambling also encompasses an adjustive, learning process. Someone might "gamble" (in dictionary terms) simply by placing a bet on something, but it is another matter to become a more accomplished gambler (i.e. to learn even one technique for bettering one's odds). Likewise, it is another matter, still, to pursue gambling on a more extensive and sustained basis and to manage a life that has begun to revolve around ventures of these sorts. Similarly, the process of disengaging from a pursuit that has become a more substantial part of one's being introduces yet other dimensions into the analysis of gambling, as also does people's tendencies to re-engage activities in which one was formerly heavily involved. [5]

Further, if one is to gamble on a more sustained basis, this requires that one engage one or more gambling subcultures in a more comprehensive sense. As indicated in Prus and Grills (2003), people's participation in specific subcultures not only involves participants achieving a fluency with the language of the group and coming to terms with emotionality, but subcultural involvements also encompass the matters of people acquiring perspectives, developing identities, engaging relationships, making commitments and becoming adept at the activities of hand. Although not articulated in precisely these terms, Lesieur's *The Chase* provides extended testimony to the centrality of subcultural life-worlds not only for people's situated involvements but also for people's longer-term careers as gamblers.

In addition to those subcultures that revolve more directly around gambling per se, Lesieur also deals with gamblers' involvements in other subcultures. While people's circumstances, as well as their modes and intensities of involvement in gambling may vary considerably, those who

become more heavily involved in gambling often extend aspects of the gambling life-world into other (subcultural) of interactional contexts, such as to families, work associates, bankers and loan sharks, and hustlers and thieves. While participation in these other life-worlds is especially consequential for understanding people's longer-term involvements in gambling, Lesieur also is mindful of the cycles of abstinence and relapse that long-term gamblers so commonly experience.

Although the preceding matters are by no means unique to gamblers (see Prus & Sharper, 1977; Prus & Irini, 1980; Prus & Grills, 2003), they are central aspects of the career process. Analysts who disregard the developmental flow of people's long-term participation in gambling activities and associated subcultural life-worlds will not be able to understand gambling as humanly-engaged activity. Somewhat relatedly, while gambling is the central emphasis in *The Chase,* those who examine gambling in career terms also become attentive (as Lesieur illustrates) to the highly interconnected and often challenging matter of participants accessing money over the course of their involvements in gambling.

## Gambling as fascinated activity

Whereas people often make reference to the fascinating or alluring aspects of gambling as an explanation to account for gambling, it should be appreciated that similar notions may be invoked in reference to many other things that people find intriguing. Instead of stopping there, thus, the more consequential issues pertain to how people develop and sustain fascinations with anything — whereby matters such as gambling, drinking, music, sports, religion or love connote but variants of the more general human capacity for developing and maintaining intrigues with things.

As with the other aspects of activity considered here, the matter of people developing fascinations with things considered disreputable or troublesome is given more extended attention in Prus and Grills (2003), but Henry Lesieur's *The Chase* provides some particularly valuable insight into the way in which people develop and sustain fascinations with race-track gambling. As is quickly evident in Lesieur's study, people's fascinations seldom develop around the aesthetics of the race or the beauty, grace and strength of well-bred horses in motion. Newcomers may attend to such things and both trainers and more experienced gamblers are apt to be highly concerned about the condition of particular horses and the track. Still, for more experienced gamblers, the emphasis more fully revolves around the matters of accessing money, defining probabilities, finding modes of hedging bets and achieving winning numbers. Thus, without denying aspects of the situation that participants may find enjoyable in various ways, it is important to recognize the ways in which gamblers also "work at," struggle with and become frustrated with their activities.

Whereas some may have been attracted to the prospects of "quick and

easy" money or other sensations associated with winning, many of the allures that people generally associate with gambling tend to dissipate as individuals "get stuck" and try to bail themselves out by re-engaging in the specific sets of activities at which they seem to become increasingly adept as they "pay the price of learning." As well, people often believe that their luck will turn around, if only they are patient enough, wise enough, opportunistic enough, courageous enough or just plain fortunate enough, to make that next bet. Indeed, it may be in subscribing to what is sometimes termed "the gambler's fallacy" — that in matters of chance past outcomes will affect future probabilities — that gambling retains one of its most potent allures. Likewise, as Lesieur notes, losses may be seen to represent lessons for the future, while interim successes bespeak hope for the future (as in inferences that one has a viable technique or has become "hot").

No less consequential, perhaps, is the allure of another common human standpoint; that people "should get paid off in proportion to the things they have invested in something." Thus, to gamble more intensively and have little other than losses and liabilities to show for one's time, effort and sacrifices is to invite imputations of (a) foolishness on one's part; (b) notions of injustice; and minimally (c) a desire to reclaim what may have a very extensive set of investments — "Gambling owes me, you know!"

A closely associated allure comes with the realization that other people, often people who seem less deserving than oneself, have had substantial, if not unbelievable, successes in gambling. This, too, may be envisioned both as an injustice that will be rectified over time as well as providing hope that a more deserving target could be the next recipient.

Relatedly, while there is a set of often intense, emotional sensations associated with the matters of strategizing, taking risks and dealing with the results, it is important that those who study gambling attend carefully to the ways in which people's experiences with emotionality are integrated into their involvements in gambling. As with people's other activities and definitions of the situation, scholars should be attentive to the ways in which the participants experience, define and attend to matters of emotionality both in more situated instances and over the longer term of their careers as gamblers.

Thus, whereas people may develop strong emotional sensations (as when winning, losing, anticipating and agonizing) while gambling and may define some of these as highly desired states to be experienced in the future, it is important to ask how these sensations develop and are sustained (and dissipated) rather than presume that these represent initial, primary or consistent forces that drive people to gamble. Also, it should not be assumed that gambling is inherently alluring or uniquely fascinating in itself. Instead, as suggested in studies of hustlers and thieves (Sutherland, 1937; Prus & Sharper, 1977; Prus & Irini, 1980; Jacobs, 1999), drug use (Brown, 1931; Ray, 1961; Becker, 1963; Biernacki, 1988), drinking (Prus, 1983), involvements in the occult (Jorgensen, 1992) and

Lesieur's work on gambling, participants not only learn definitions of situations, events and emotionalities from others, but also negotiate and redefine their notions of situations with others on a more situated basis.

While not denying that people may develop habits, intense sensations, and dependencies around gambling or other activities, it is essential that researchers and analysts locate these matters within the broader life-worlds within which people find themselves. Otherwise, in focusing on the seeming allures of gambling or other, often intense involvements, scholars not only are apt to miss almost everything else that goes into people's experiences (e.g. perspectives, identities, relationships) but they also will fail to comprehend the ways in which these fascinations are developed and sustained within the realities of their respective subcultural contexts.

## Gambling as persistent activity

Whereas the preceding material addresses aspects of what also has been termed compulsive behavior, it is important to acknowledge three other aspects of persistent behaviors that people commonly define as compulsive or uncontrollable. I am referring here to *labelling, subcultural embeddedness* and *emotional concretization.* These three processes are more closely interlinked than they might first seem and each has been discussed to some extent earlier in this statement. Still, it may be useful to make brief, but explicit reference to each of these matters.

As used herein (also see Prus & Grills, 2003), the term labelling refers to the ways that people (a) make sense of or define others and themselves, (b) designate others and themselves as certain kinds of people, and (c) develop and adjust their activities and relationships mindfully of these self-other definitions.

Although often applied to deviants (see Lemert, 1951, 1967; Becker, 1963; Goffman, 1963), these interactionist notions are relevant to all realms of human group life. Still, one of the implications is that in labelling or designating others (targets) as certain kinds of persons, people set up expectations that stabilize one another's activities and relationships with respect to those targets. As well, the names and expectations associated with particular targets tend to deter (disregard, discourage or prevent) these people from pursuing other options.

When labels are applied more intensively and extensively to specific individuals (or particular groupings), all of people in the setting tend to "objectify" (Berger & Luckmann, 1966) those identities by envisioning and acting toward the targets as if they (really) are those essences. In many cases, as well, this includes the targets and their (presumedly) closest supporters.

Names and reputations do not automatically prevent targets from developing alternative senses of self or lines of involvement. However, to

the extent that specific people (targets) become known and acted toward in certain ways, it may be difficult for them to avoid these (interactive) configurations even when they might very much wish to do so. Further, there may be certain advantages, intrigues or other enjoyable features that targets and others associate with the identities and reputations of even distinctively negative sorts.

Also, even when people (targets) might wish to avoid certain identities and related treatments, they may find that it is easier or more expedient to assume the particular roles and identities to which they have been assigned than to contest or challenge these definitions. As well, the more fully people organize their lives around particular roles and identities, the more likely they will be successful in those fields of endeavor. And as Prus and Grills (2003) observe, the more fully people organize their lives around particular endeavors, the more difficult disentanglement from those situations is apt to be.

These matters of self, identity, role and activity, reflect basic interactionist notions of community life. However, when people's identities and activities are defined as negative, troublesome or problematic in the community, these typically assume a mystique or aura that objectifies, isolates, rejects or stigmatizes the person or group so defined (see Lemert, 1951, 1967; Garfinkel, 1956; Becker, 1963; Goffman, 1963; Prus & Grills, 2003). When these definitions are imposed in more intense and sustained manners, even the targets so identified may find it difficult to envision and act toward themselves in other terms.

Notably, too, although people designated as deviants or troublesome characters may be shunned or avoided by some people, these same identities may represent sources of prestige or esteem among others in the broader community (see Lesieur, 1977; Prus & Irini, 1980; Wolf, 1991, for instance). In both respects — rejection and prestige — one's identity as a deviant (e.g. gambler, smoker, drug user) may be confirmed or objectified, thereby fostering a greater sense of realism. "That is what one is," in more unmistakable and unavoidable terms.

People's identities as gamblers typically develop over time. However, the often intermittent anticipations of disinvolvement on the part of participants and their supporters, along with people's other definitions of the participants as "gamblers" and especially as "heavy" or "compulsive" gamblers, add aspects of realism to participants' senses of role entrenchment. In particular, apparent failure(s) to stop gambling when others or the gamblers themselves insist on doing so adds viability to people's convictions that indeed, one is a gambler (and ought to be recognized and treated as such).

Still, labelling only partially can account for people's persistent involvements in things. Thus, whereas some people may have maintained more conventional lifestyles, seemingly in part because they were not explicitly labelled (and treated) as gamblers, this is only part of the

process.

A second but related matter may be termed subcultural embeddedness. Consistent with Prus (1997) and Prus and Grills (2003), the term subculture is used to refer to the life-worlds that develop around specific realms of activity. Although often associated with deviance, it should be appreciated that people may develop subcultures around any realm of activity.

More importantly for our immediate purposes, however, is the recognition that each subculture represents a way of life for those involved within — as in perspectives, identities, relationships, activities, linguistic fluencies and emotionalities. Relatedly, the more fully people become immersed in particular subcultures (be these religious, political, work, or recreational), the more likely they will use the viewpoints and practices of those subcultures as central reference points. These are consequential not only for the ways that the participants define themselves, but also for the manners in which they define the activities, associations, and situations in which they find themselves. Participants may switch frames of reference as they move from one subculture to the next — as from gambling to work to one's family, for instance — but the people in each subculture have their own emphases and their own notions of reality.

To make the argument more succinctly in the case of gambling, as people become more familiar with the viewpoints, practices and other people who help sustain this life-world, one develops a set of experiences that define, occupy and give meaning to oneself and to others both inside of and outside of this life-world. To disengage from gambling, thus, is not a simple matter of not placing bets. If one hopes to be successful in this world, it seems necessary to engage these various dimensions of subculture. However, disinvolvement requires that one disentangle oneself from the perspectives, identities, activities, commitments, relationships, language and emotionalities of this life-world.

As Lesieur (1977) indicates, the subculture of the racetrack not only represents a multi-faceted life-world but also one that extends into or permeates a variety of other life-worlds (particularly in the quest for money and the problems of loss). In a related way, as people become involved with bookies and loan sharks, hustlers and thieves, and enter into various deceptions and scams involving families, work and legitimate businesses, they become more firmly entrenched in the reality of the gambling subculture.

The third aspect of persistence discussed here is what I have termed emotional concretization. [6] Although this would include aspects of people's emotional experiences associated with the more immediate and often intense sensations of winning and losing, as well as the sensations associated with anticipation of gambling, making bets, waiting for the results, and dealing with the outcomes, I am referring here to the more

complete set of people's physical and mental sensations (perceptions, definitions, affectations and behaviors) associated with their involvements in gambling.

This would include notions such as being somebody, being smarter than other people or not being "a sucker." However, it would also include both the risks that one takes as well as the anticipation that one can "beat the system." It would encompass the work that one puts into gambling as well as anticipation of eventual pay offs. It also would include sensations of "being hot" and "being a big shot" as well as "blowing money" stupidly, feeling "really desperate," and facing "points of no return." It would include the sights, sounds and aromas as well as the images and recollections of the particular characters, including the amateurs, sharpies, hustlers, high rollers, lucky stiffs and losers that inhabit one's life-world. Likewise, in addition to any excitement, thrills or "adrenaline rushes," it also would include people's experiences with boredom and the lack of action as well as the sensations associated with making "smart moves," acknowledging missed chances, hedging bets and "hitting bottom."

Because gambling, when done more extensively, permeates one's entire existence — not just one's thoughts but also one's associates, one's activities, and one's physiological-emotional being — gambling assumes a set of enacted realisms that cannot be readily left behind.

Thus, while people may attempt to reframe their perspectives, accept the losses of the past and give up on hopes of coming out ahead, these other elements are not so easily erased from the fibers of one's consciousness. Indeed, even were certain gamblers to "hit it big" and sustain a more affluent life-style, it is not apparent that most could detach themselves from gambling "as activity." As long as they meet their debts, people may avoid being defined as "problem gamblers." [7] Likewise, with "deeper pockets" people may be in positions to more effectively shape the outcomes of particular gambling contests (as in financially bulling or controlling games at certain levels). Otherwise, were they to forgo gambling more entirely, they seem likely not only to "miss the action" but also other aspects of the "gambler self."

## In sum

In contrast to those who would reduce gambling to sets of physiological, psychological or social structural factors, this statement has addressed gambling as a meaningful, humanly enacted realm of activity. Likewise, in contrast to those who would enshroud gambling in mystiques of various sorts, as well as those who would envision gambling as a totally unique phenomenon that requires a theory entirely of its own, this paper has examined gambling in more generic terms.

The interactionist paradigm introduced here has much more to offer to the study of gambling than possibly could be indicated within the present

statement (see Prus & Grills, 2003). However, the present discussion may alert readers to the necessity of examining gambling as well as other realms of human behavior both in the instances in which people do things and in ways that are mindful of the particular subcultural arenas or theaters of operation in which people do things in conjunction with others.

Although I have not summarized *The Chase* in the present statement or made as much use of the rich ethnographic materials found within Lesieur's as one might have, more experienced researchers may appreciate that there is no substitute for examining ethnographies in careful, more sustained detail. Indeed, a comprehensive ethnography such as that developed by Henry Lesieur should be read carefully and completely if one is to more adequately appreciate the wisdom about human knowing and acting that is contained within.

Attending to the ways that the people deal with hopes, ambiguities, risks, losses and associates in a shifting subcultural arena, Henry Lesieur's study provides considerable insight into the ways that people acquire perspectives on particular aspects of the life-worlds in which they operate, develop identities (reputations and self-images) as certain kinds of people, generate relationships with an assortment of others, engage activities in more fascinated, sustained, and habituated terms, deal with an assortment of emotional experiences and interchanges, make and disregard commitments involving others and strategically participate in an array of collective events.

Thus, whereas *The Chase* is a valuable portrayal of a particular form of gambling and an exceptionally instructive account of people's involvements in gambling more generally, Henry Lesieur's study makes a yet more important contribution to the transsituational and transhistorical analysis of people's activities. As a highly detailed and intimately informed account of a relatively distinctive life-world, *The Chase* represents an especially consequential resource for scholars questing for a broader and more enduring comparative understanding of human group life.

## Endnotes

*(Click the endnote number to return to the text.)*

1 In addition to those involved in the editorial review process, I would like to thank Fatima Camara and Lorraine Prus for their thoughtful comments on earlier drafts of this paper.

2 Those who examine this text may quickly appreciate that a central objective is to "permeate the deviant mystique" — to take the deviance phenomenon apart, piece-by-piece, and focus more fundamentally on the things that people do. Thus, while attending to the ways that people bring their notions of morality into play in the broader deviance-making process, it is emphasized that the activities in question are not "driven by" nor

should they be explained by people's notions of morality. Hence — whereas the moral definitions that people invoke (i.e. place on particular activities and participants) tend to complicate both the explanation of deviance (as activity) and the broader involvement process in which those designated as "deviants" experience — the focus, first and foremost, is on activity as a humanly engaged process.

3 Although, I have not done a study of gambling per se, I have studied the activities and life-worlds of an assortment of hustlers and thieves (Prus and Sharper, 1977, 1991; Prus and Irini, 1980) whose lives intersect with those of gamblers in various ways. I also have benefited from ethnographic accounts of poker players (Hayano, 1982) and the racetrack (Scott, 1968), as well as explicit considerations of the gambles associated with marketplace activity (Prus, 1989a, b).

4 For a more sustained analysis of people's "solitary" as well as "subcultural" involvements in deviance, see Prus and Grills (2003).

5 Although beyond the scope of this immediate statement, Prus and Grills (2003) also consider the disinvolvement and reinvolvement process, as well as the roles that people may assume as agents of control and the linkages between treatment and people's careers in particular realms of deviance.

6 For a more extended interactionist analysis of emotionality, see Prus (1996).

7 Although extended indebtedness is apt to be a major theme in defining someone's gambling as "out of control," other sources of difficulty may revolve around gamblers' apparent neglect of work, family, and other relationship obligations.

## References

**Becker, H. S. (1963).**
*Outsiders: Studies in the Sociology of Deviance.* New York: Free Press.

**Berger, P. & Luckmann, T. (1966).**
*The Social Construction of Reality.* New York: Doubleday-Anchor.

**Blumer, H. (1969).**
*Symbolic Interaction.* Englewood Cliffs, NJ: Prentice-Hall.

**Brown, L. G. (1931).**
The sociological implications of drug addictions. *Journal of Educational Sociology, 4,* 358-369.

**Garfinkel, H. (1956).**
Conditions of successful degradation ceremonies. *American Journal*

*of Sociology, 61,* 420-424.

**Goffman, E. (1963).**
*Stigma: Notes on the Management of Spoiled Identity.* Englewood Cliffs, N.J.: Prentice-Hall.

**Hayano, D.M. (1982).**
*Poker Faces: The Life and Work of Professional Card Players.* Berkeley, CA: University of California Press.

**Jacobs, B. A. (1999).**
*Dealing Crack: The Social World of Street Corner Selling.* Boston: Northeastern University Press.

**Jorgensen, D. (1989).**
*Participant Observation.* Newbury Park, CA: Sage.

**Lemert, E. (1951).**
*Social Pathology.* New York: McGraw-Hill.

**Lemert, E. (1967).**
*Human Deviance, Social Problems and Social Control.* Englewood Cliffs, NJ: Prentice-Hall.

**Mead, G.H. (1934).**
*Mind, Self and Society.* Chicago: University of Chicago Press.

**Prus, R. & Sharper, C.R.D. (1977).**
*Road Hustler: The Career Contingencies of Professional Card and Dice Hustlers.* Lexington, MA: Lexington Books.

**Prus, R. & Irini, S. (1980).**
*Hookers, Rounders, and Desk Clerks: The Social Organization of the Hotel Community.* Salem, WI: Sheffield.

**Prus, R. (1983).**
Drinking as activity: An interactionist analysis. *Journal of Studies on Alcohol, 44* (3), 460-475.

**Prus, R. (1989a).**
*Making Sales: Influence as Interpersonal Accomplishment.* Newbury Park, CA: Sage.

**Prus, R. (1989b).**
*Pursuing Customers: An Ethnography of Marketing Activities.* Newbury Park, CA: Sage.

**Prus, R. (1996).**
*Symbolic Interaction and Ethnographic Research: Intersubjectivity and the Study of Human Lived Experience.* Albany, NY: State University of New York Press.

**Prus, R. (1997).**

*Subcultural Mosaics and Intersubjective Realities: An Ethnographic Research Agenda for Pragmatizing the Social Sciences.* Albany, NY: State University of New York Press.

**Prus, R. & Grills, S. (2003).**
*The Deviant Mystique: Involvements, Realities, and Regulation.* Westport, CN: Praeger.

**Ray, M.B. (1961).**
Abstinence cycles and heroin addicts. *Social Problems, 9,* 132-140.

**Scott, M. (1968).**
*The Racing Game.* Chicago: Aldine.

**Wolf, D. (1991).**
*The Rebels: A Brotherhood of Outlaw Bikers.* Toronto, ON: University of Toronto Press.

*This article was peer-reviewed.*
*Submitted: July 2, 2003*
*Accepted: January 7, 2004*

**For correspondence:**
*Robert Prus, PhD*
*Department of Sociology*
*University of Waterloo*
*Waterloo, Ontario, Canada N2L 3G1*
*Phone: (519) 888-4567 ext. 2105 (office) or ext. 2421 (Departmental office)*

*E-mail: prus@uwaterloo.ca*

*A symbolic interactionist and ethnographer, Robert Prus, PhD (Dept. of Sociology, University of Waterloo; prus@uwaterloo.ca) intends to connect social theory with the study of human action in a very direct, experientially-engaged (community life-world) sense. He has authored or co-authored several books that focus on the ways that people make sense of and engage the situations in which they find themselves. These include* Road Hustler *(with C.R.D. Sharper);* Hookers, Rounders, and Desk Clerks *(with Styllianoss Irini);* Making Sales; Pursuing Customers; Symbolic Interaction and Ethnographic Research; Subcultural Mosaics and Intersubjective Realities; Beyond the Power Mystique *and* The Deviant Mystique *(with Scott Grills).*

*At present, Dr. Prus is tracing the developmental flows of pragmatist thought from the classical Greek era (ca. 700-300 BCE) to the present time and is attending to the study of human knowing and acting in a number of areas of western social thought — including rhetoric, poetics, religious studies, ethnohistory, education, politics and philosophy.*

**issue 10 — february 2004**


contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES



**Research**

*[This article prints out to about 43 pages.]*

# Blackjack playing strategies and beliefs: A view from the field

*By Will Bennis*
*University of Chicago*
*Chicago, Illinois, U.S.A.*
*E-mail: w-bennis@uchicago.edu*

## Abstract

A great deal of research on the psychology of gambling has been conducted that has looked at non-experienced gamblers in laboratory or classroom settings. Yet there has been comparatively little research examining the practices and beliefs of actual gamblers within their natural gambling context. The current research contributes to the naturalistic study of casino gamblers. It reports the results of 10 weeks of ethnographic participant observation conducted in 1999 in two Indiana riverboat casinos located about ½ hour from Chicago. The research examines blackjack players' strategies for and beliefs about winning as explained and understood by the gamblers themselves. It uses blackjack's basic strategy and card counting as organizing principles around which to discuss and assess these strategies and beliefs.

**Keywords:** blackjack, decision making, gambling, ethnography, casinos

## Introduction

Gambling is a large and growing industry in the United States and around the world (Gu, 2002; Morais, 2002). According to Britain's Global Betting & Gaming Consultants, gamblers risked an estimated US$900 billion on wagers around the globe (Morais, 2002). In Europe between 1986 and 1996, legalized casinos expanded from 20 to 32 countries (Gu, 2002). In the U.S. alone, revenues from legal gambling grew from $3 billion in 1975 to over $60 billion in 2000, a more than 20-fold increase (Volberg, 2002). In 2002, Americans spent more on legal gambling than on movies, theme

parks, spectator sports and video games combined (Morais, 2002)

A common explanation for the widespread choice to gamble, as well as the continuation of gambling behavior to the point where it becomes a problem, is that gamblers have biased or irrational cognitions, both about their chances of winning and about how best to play the games once the choice to gamble has been made (Baucum, 1985; Cornish, 1978; Kweitel & Allen, 1998; Ladouceur, 1993; Lesieur & Rosenthal, 1991; Wagenaar, 1988; Walker, 1985, 1992). At the same time, a number of researchers have suggested that too much of this research has been conducted in laboratory contexts using non-gamblers (Lesieur, 1984; Walker, 1992). Psychological research examining how gambling strategies and beliefs about winning are influenced by the structure and dynamics of the gambling environment — and, in particular, the sociocultural environment — is exceedingly rare (Cornish, 1978; Eadington & Cornelius, 1994; Wildman, 1999). Ethnographic work exploring casino gamblers' subjective understandings and rationales for their beliefs is nearly as difficult to come by (for some exceptions to this see Hayano, 1978; Hayano, 1982; Henslin, 1967; Lesieur, 1984; Oldman, 1974).

The current study takes a step toward addressing this paucity of real-world research. It involves field observations from 10 weeks of ethnographic participant-observation conducted in the spring of 1999 on two Indiana riverboat casinos located about ½ hour from Chicago. The focus will be on the practices and beliefs surrounding casino blackjack play: what common strategies do blackjack players use when playing the game and how are these strategies understood by the players themselves? Most of the fieldwork was conducted either on a casino shuttle carrying passengers to and from downtown Chicago hotels or at blackjack tables in the two casinos. A few additional conversations took place in other venues as well — at the casino buffet, waiting in line to board the ship, and, in one case, during an interview with a floor supervisor.

**Why ethnographic participant-observation research?**

Ethnographic participant-observation can be distinguished from purely observational methods in that the researcher attempts to live within the community being studied and to participate in their lifestyle and practices as opposed to standing outside the community. Where a non-participant-observer often approaches subjects with pre-existing categories or concepts to be measured, the participant-observer tends to seek out the categories and concepts widely shared by members of the group being studied. At the same time, "observation" is a key component of the research method, in that maintaining an outsider's perspective while coming to understand the insiders' perspective is seen as one of the goals. My role as participant, then, was as a fellow gambler, who traveled to the casinos; risked, won, and lost money; and engaged with the other gamblers as one of them. For a detailed description of participant-observation as a research methodology see J.P. Spradley's *Participant Observation* (1980).

There are three main strengths that I believe make ethnographic participant-observation ideal for studying gambling behavior in context. First, it reduces the distorting relationship between "observer" and "observed" that often occurs in purely observational, experimental or survey studies, where the subjects of study may be keenly aware of and consciously or unconsciously influenced by the presence of the researcher. Second, participant observation allows the researcher a richness of content that is not available with methods involving pre-arranged questions and pre-determined causal variables. Participant observation allows the researcher to be surprised with relevant information that may have been inadvertently screened out by other research methods. Third, and most importantly, participant observation allows the researcher richer access to the practices, values, beliefs and experiences of the people being studied compared with other methods. It allows the researcher to share the subjective experiences of members of the community (in this case, the subjective experience of gambling). It also opens the researcher up to both implicit and explicit values and beliefs that will often not be visible to non-participant observers or to others more markedly *outside* the community being studied. This current project is primarily concerned with how the sociocultural context influences gambling decisions. To understand this, a rich sense of this context is essential: what are the gamblers' world views, what are their values and beliefs, how is information structured and selectively available within the gambling environment and what are the components and dynamics both of that environment and of the gambling experience. Non-participant observation, an experimental paradigm, or structured interviews are simply not as well-suited to answer these questions. Participant observation, on the other hand, is ideal.

At the same time, two important shortcomings to ethnographic participant observation should be stated up front. First, the researcher often has no means through which to identify causal relationships (such as among thought processes, the environment and behavior). The real world is inherently messy, with few if any controls to allow for correlating independent or dependent variables or for replicating results in cases where apparent causal relationships can be identified. Without the ability to rule out confounding variables, to measurably quantify results or to replicate findings, it is difficult to be sure whether ethnographic findings are really findings at all or simply the idiosyncratic outcome of a complex mish-mash of cause and effect. The second weakness is that what the researcher observes and remembers is necessarily subjective since there are no concrete criteria for what to record or what to attend to, and there is no permanent record to refer to for verification that what seemed significant actually is or what one remembers actually occurred.

Research psychologists, and cognitive psychologists in particular, tend to be implicitly attuned to the weaknesses of ethnographic method or any attempt at a holistic understanding of human behavior. Much of their education has been devoted to learning about the inherent biases and failings of human subjectivity, and much of their approach is designed

specifically to overcome these shortcomings through the use of careful control, replication and hypothesis testing. Yet they also tend to be relatively unreflective about the shortcomings of reductionism and the ways in which behavior in context is more than the sum of individual psychological processes. The psychologists' concerns are just, and the findings presented in this paper should be seen as tentative. At the same time, the shortcomings of experimental methods and the benefits of ethnography are also undeniably true. The current study should be seen, then, as just one part of a larger research program, the part important primarily for its absence from the larger whole, which is currently unbalanced on the side of experimental, quantitative research.

**My background in blackjack**

My own background and experience with blackjack has contributed importantly to my decision to study this particular game and to the lens through which I have interpreted and evaluated players' performances. As such, a few of the details of this background will be provided here. Just after turning 21, I bought a used copy of Edward O. Thorp's *Beat the Dealer* (1966) in preparation for an upcoming drive through Nevada. Although I did not know it at the time, Thorp is widely viewed as the father of contemporary card counting. *Beat the Dealer* is for card counters something akin to what *The Origin of Species* must be for evolutionary biologists: the first great book on the subject, esteemed for its theoretical and scientific rigor, still held in high regard and a classic in the field. During the trip, I only had time to learn the simplest and least effective card counting system provided in the book, and the "basic strategy," the statistically best way to play each hand given: a) a particular set of rules, b) normally distributed cards, and c) a player whose goal it is to maximize expected winnings (or minimize expected losses). Knowing the basic strategy by heart is a prerequisite for the successful implementation of any card counting system. I was lucky during my few hours of play and won $50, a great achievement as far as I was concerned, and, along with the excitement of trying to clandestinely beat the casinos at their own game, this was enough to cement my interest in blackjack.

For the next two years after that, I read several books on card counting, eventually learning advanced methods. I spent several holidays with friends in Las Vegas, sometimes raising money from friends and family to allow me to bet at higher stakes tables, ironically losing more during trips when I gambled my own money and winning more during trips when I had "investors." During this time, I learned that casino counter-measures used to thwart card counters were effective enough to make earning significant money essentially impossible. I also learned that the variance in wins and losses, even when betting with the minimum stakes possible, was beyond what I could afford, given the potential reward. My interest in card counting dwindled. A significant observation that I made during this period was that most experienced players not only systematically violated basic strategy, but also that they often adamantly and vociferously opposed many of the basic assumptions of card counting and, apparently, of probability theory.

The choice to study blackjack players was largely influenced by this background and experience with the game.

The use of basic strategy and card counting in blackjack, both as normative models and as organizing structures for describing actual blackjack play are largely a result of my path into blackjack and the theoretical perspective which that path provided. Had I first learned blackjack from extensive experience in the casinos, as did most of the gamblers I observed, I believe that my normative evaluation of these players, and my understanding of their actual decision processes, would be considerably different. In particular, I think I would be more inclined to see the players' strategies and beliefs as both more reasonable and more correct than I currently do. Had I first learned about blackjack as a gambling clinician or researcher, I believe my evaluation and understanding would again be considerably different. In this case I might be more prone to see the strategies and beliefs as a consequence of irrational or biased cognitive and motivational processes.

The remainder of this paper will be organized into three sections. The first section will provide details regarding the game of blackjack itself. This includes blackjack rules as offered in the casinos where I conducted my fieldwork, and an introduction to both the basic strategy and card counting. The second section will present the ethnographic findings. Finally, the conclusion will summarize these findings and consider what has been learned of relevance to the study of gambling behavior and problem gambling. A glossary of blackjack-specific terms that will be used throughout the article can be found in the Appendix.

## Background on blackjack

Casino blackjack is a somewhat complicated game with its own vocabulary, as many as five types of choices per hand, significant consequences on one's chances of winning depending on these choices, and a variety of rules and norms surrounding play. This section will provide a useful background on casino blackjack. Part one will introduce the rules of the game in the casinos where I conducted my fieldwork. Part two will discuss the two most widely acknowledged normative models for how to play casino blackjack: basic strategy and card counting. Both of these assume the goal of blackjack should be to win as much (or lose as little) as possible over the statistical long run. Blackjack-specific vocabulary will be defined as it is introduced, but the author recognizes there is a lot to digest. For that reason, a glossary of blackjack terms has been included in an appendix as a reference.

### Blackjack rules

The goal of blackjack is to get a higher point total than the dealer without *busting* (getting more than 21 points). All cards are worth their face value with two exceptions: face cards (jacks, queens and kings) are each worth

10 points, and aces are worth either one or 11, depending on which makes a better hand. In Indiana, blackjack is played on a felt-top table with seven places for players (as compared to the six places in the image below) who sit around a crescent-shaped table facing the dealer, a casino employee. As few as one person can play, and one person can play more than one hand, although the minimum bet per hand is higher for players who wish to play more than one hand per round. Each player competes only against the dealer, not against the other players.

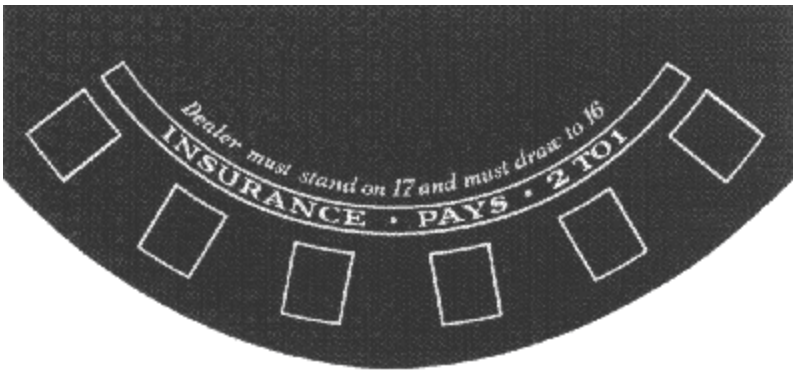



**Figure 1**

Before the cards are dealt, players place their bets in front of them on the felt in a circumscribed space. Players can bet as much as they would like constrained by a minimum and maximum bet as indicated by a sign at each table. During fieldwork, minimums at the casinos ranged from $5 to $100; maximums ran from $1,000 to $10,000. Bets are made in the form of casino chips that have various monetary values signified by both a color code and a printed dollar amount. These may be purchased from the dealer at the table. Once all bets have been placed, two cards are dealt face up to each player and two cards to the dealer, one face up and the other face down. The latter is known as the *hole card.* Players are not allowed to touch their cards; instead they signal their play choices using hand motions or by placing additional chips on the table.

Cards are dealt from a plastic box called a *shoe,* which holds either six or eight normal decks of cards that have been shuffled together. The total number of decks depends on the casino and on the table's betting limit. A blank plastic card is inserted about two-thirds of the way into the shoe after shuffling. When the plastic card is reached after several rounds of play, that particular round is finished, and all of the cards are again shuffled to begin the next round.

The payout system in blackjack works as follows: If the player busts or if the dealer does not bust and the player gets a lower point total, the player loses and the dealer takes the player's bet. If the player and the dealer have the same amount, called a *push*, no money is won or lost, and the player may take his or her original bet back, leave it out for the next round, or add to it. If the player has a higher point total than the dealer, or if the player does not bust and the dealer does, then the player wins the amount

of their original bet.

If the first two cards are an ace and a 10-value card, the player or dealer has a *blackjack.* Blackjack is the most powerful hand in the game, winning against all other hands, including other hands worth 21 points that are not blackjacks. The player also receives a bonus for blackjack of an additional one half of the original bet (assuming the dealer does not also have a blackjack, in which case the player and dealer push).

Once the hands have been dealt, play proceeds with the first player to the dealer's left, who must make all of his or her play choices before the next player's turn. Players have up to five different choices in blackjack: *hitting, standing, doubling down, splitting,* and *taking insurance* or *even money.* The two most common choices are between *hitting* or *standing* which involve, respectively, either taking additional cards or not taking additional cards and ending the turn.

*Doubling down* is an option on the player's first two cards. This requires doubling the original bet. At this point the player receives exactly one additional card, no more, no less. If players would like to *double down* for less than the amount of their original bet, they may.

*Splitting* is an option if the player's first two cards have the same value, including any two 10-value cards, such as a 10 and a king. Splitting requires the player to match his or her original bet, as with doubling down. The dealer then usually asks whether the player wishes to double or split. Once "split" is indicated, the dealer separates the two cards placing one of the bets in front of each card, and dealing a second card to each original, so that the two cards make two new hands which are then played separately. If the split cards are aces, the player can only receive one card to each ace, and if this new card is a 10-value card, the hand only counts as a normal 21, not as a blackjack. With all other split hands, the player may hit, stand and double down as though playing a new hand.

If the dealer's face-up card is an ace, players are given the option to take *insurance* before they begin play. The insurance bet is a side bet that the dealer will have a blackjack. The standard insurance bet is half the amount of the player's original bet, although players are allowed insurance for less than half if they wish. If the dealer has a blackjack, the insurance bet pays the player two to one, covering the amount of the player's original bet; hence, the name. If the dealer does not have a blackjack, the insurance bet is lost, and play commences as normal.

If a player has a blackjack, given the insurance choice, this player has the option to take either *even money* or *insurance.* If the player takes even money, the dealer pays out the amount of his or her original bet before checking the hole card for a blackjack, thus guaranteeing the player a win. If the player does not take even money, play commences as usual, such that the player wins 1.5 times his or her original bet if the dealer does not

also have a blackjack. The player may also push, neither winning nor losing, if the dealer does have a blackjack. Taking even money results in an identical outcome to taking insurance for the full amount, although many players (and many casino employees) do not realize this. In both cases, a player with blackjack will win exactly the amount of their original bet, whether or not the dealer ends up having a blackjack.

Before participants commence play, the dealer checks for a blackjack (with either a 10-value or ace up-card) using a mirror built into the table. If the dealer has a blackjack, all losing bets and the corresponding cards are removed from the table, except double down or split bets, which are returned to the player. If the dealer does not have a blackjack, play commences as usual. If any players have blackjacks, they are also paid immediately and their hands removed from the table. During a player's turn, if they bust, their bet is immediately removed and their cards taken away, such that even if the dealer subsequently busts, the player still loses.

When all the players have finished playing their hands, the dealer turns over his or her hole card. The dealer must then hit or stand by a set of predetermined rules that do not depend on the players' cards. If the dealer's total is 16 or less, the dealer must hit. If the total is 17 or more, the dealer must stand. Thus, even if every player at the table has an 18 and the dealer only has a 17, the dealer must stand, losing to all players at the table.

While this set of rules is standard for the casinos where I conducted my fieldwork, there are a number of common blackjack rule variations in the U.S. and around the world. The common rule variations include:

1. the number of decks used, which commonly include one-, two-, four-, six-, and eight-deck games;
2. whether or not the player may double down after splitting;
3. whether or not the player may double down on any two cards, or only a subset, usually limited to 10 and 11, or to nine, 10, and 11;
4. whether the dealer hits or stands with a *soft 17* (a soft hand is a hand with an ace in which the ace could be valued as either a one or 11, thus a soft 17 is a hand with an ace and other cards valuing a total of six);
5. whether the dealer waits until after play choices have been made to check for a blackjack and then keeps or returns double-down and split bets; and
6. whether or not the player may surrender, which involves giving up half of one's bet after the cards have been dealt but before any play choices have been made, and throwing in one's cards.

These rule differences all have repercussions for how people play their hands, for how they ought to play their hands given the goal of maximizing expected value, and for the casino's advantage assuming optimal play. A number of conventions also vary from casino to casino, such as whether the cards are dealt face up or down (they are dealt face down in single- and double-deck games), whether the player can take insurance with a blackjack or just even money, whether the player can insure or double for less, and whether people can bet on other players' hands.

## Normative models

Before discussing how people actually play blackjack, it is worth discussing how one might expect people to play blackjack assuming that their goal is to maximize expected winnings [1] or to minimize expected losses. Strategies that contribute to maximizing expected winnings will be divided into two types: 1) the basic strategy, which corresponds to the statistically best way to play each hand given that the player is not keeping track of cards removed from play; and 2) card counting, which involves tracking cards removed from play and adjusting betting and playing strategies in order to increase the likelihood of winning. I have used these normative models as organizing structures to help sort out and evaluate the various playing strategies used by players in the casino. In other words, I have asked, to what degree do playing strategies correspond to or vary from normative strategies, and how are such variations understood by the players?

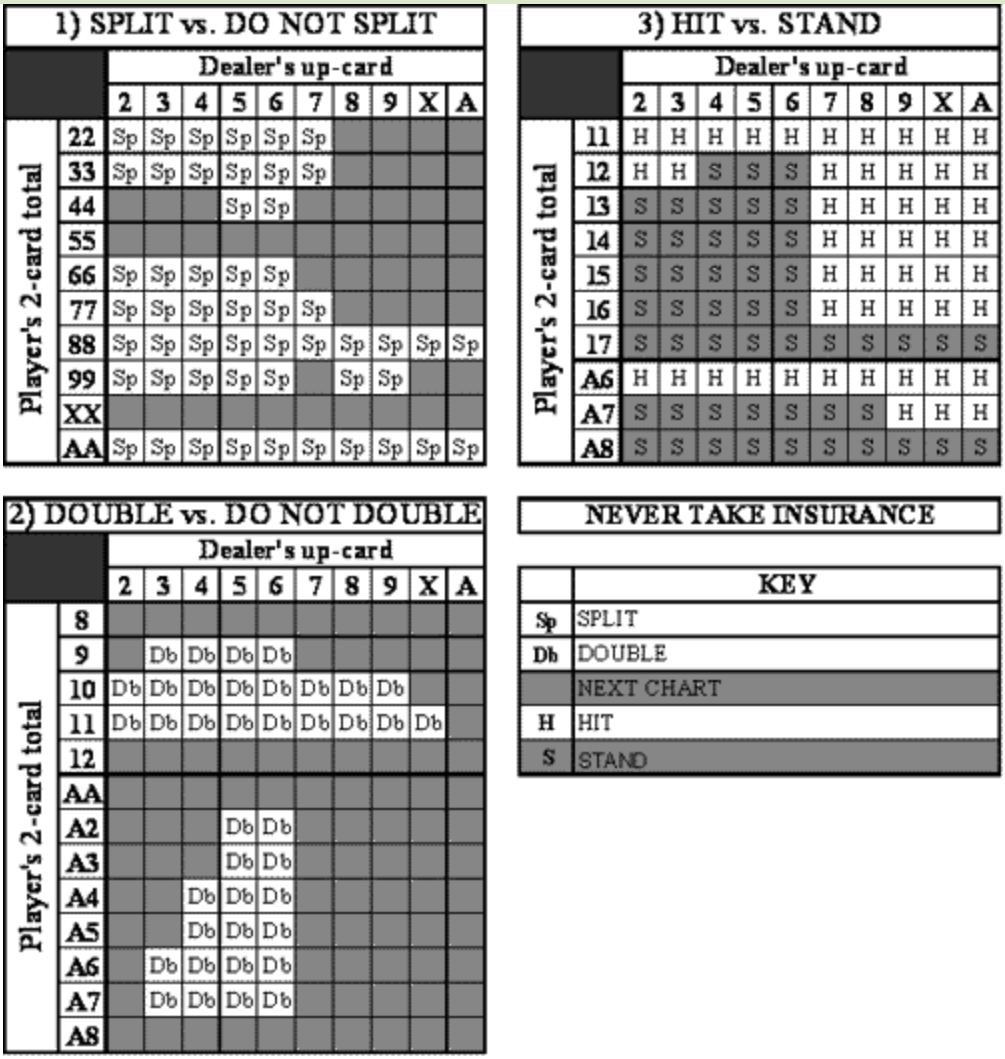
I refer to these systems as normative because they serve to increase the player's expected returns (or decrease their expected losses). Thus, for example, if the player has a 10 and a four for a total of 14, and the dealer has a 10, the player will have three choices — to hit, to stand or to double down. Each of those choices has a different expected return to the player. Hitting will cost players an average of 46.31% of their original bet, standing an average of 54.02% and doubling down an average of 93.20% (Farmer, 2002). As such, for this particular hand the normative strategy is to hit, which while costing the player nearly half of his or her bet, on average, is still less costly than the other two possible choices..

At the same time, both basic strategy and card counting should be seen as tentative measures of normative behavior. Although it is often implicitly or explicitly assumed that a rational assessment of gambling choices should be based on the implications of these choices for expected return, the gamblers themselves may get more out of other aspects of the gambling experience. In this case the expected return — and thus both basic strategy and card counting — will be a poor standard for the normative assessment of gambling behavior. The degree to which basic strategy and card counting are appropriate measures will be discussed later when presenting the ethnographic findings, in which the utility of the gambling activity is examined in more detail.

**The basic strategy**

The *basic strategy* indicates the best way to play each hand without using either a counting system or cheating. People often refer to this as *playing by the book.* A correct basic strategy for a particular set of blackjack rules was not calculated until a team of statisticians did so in 1956 (Baldwin, Cantey, Maisel & McDermott). Correct basic strategies for various rule changes were not determined until the 1960s when high speed computers were programmed to simulate all of the different hand combinations millions of times in order to determine the true odds for a specific play choice (Revere, 1980; Thorp, 1966). Using this system, researchers were able to determine the exact statistical difference between, for example, hitting an "ace, seven" against a dealer's six versus standing or doubling down.

Playing strictly according to the basic strategy will usually decrease the casino's expected return to below one per cent, although this will vary depending on the rules at a particular establishment. (If the casino has a one per cent expected return, then for every $100 a gambler risks, the casino will retain one dollar, on average over the long term). The expected cost to the player for perfect basic strategy at the casinos where I conducted my field research is 0.43% and 0.45%, respectively, depending on whether six or eight decks are used (Janecek & Tesinsky, 2003). The basic strategy provided below ( Figure 2 ) is specific to the rules for blackjack at the two riverboat casinos in Indiana where I conducted my field research.



1) SPLIT vs. DO NOT SPLIT

| Player's 2-card total | Dealer's up-card 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | X | A |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | Sp | Sp | Sp | Sp | Sp | Sp | | | | |
| 33 | Sp | Sp | Sp | Sp | Sp | Sp | | | | |
| 44 | | | | Sp | Sp | | | | | |
| 55 | | | | | | | | | | |
| 66 | Sp | Sp | Sp | Sp | Sp | | | | | |
| 77 | Sp | Sp | Sp | Sp | Sp | Sp | | | | |
| 88 | Sp | Sp | Sp | Sp | Sp | Sp | Sp | Sp | Sp | Sp |
| 99 | Sp | Sp | Sp | Sp | Sp | | Sp | Sp | | |
| XX | | | | | | | | | | |
| AA | Sp | Sp | Sp | Sp | Sp | Sp | Sp | Sp | Sp | Sp |

3) HIT vs. STAND

| Player's 2-card total | Dealer's up-card 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | X | A |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | H | H | H | H | H | H | H | H | H | H |
| 12 | H | H | S | S | S | H | H | H | H | H |
| 13 | S | S | S | S | S | H | H | H | H | H |
| 14 | S | S | S | S | S | H | H | H | H | H |
| 15 | S | S | S | S | S | H | H | H | H | H |
| 16 | S | S | S | S | S | H | H | H | H | H |
| 17 | S | S | S | S | S | S | S | S | S | S |
| A6 | H | H | H | H | H | H | H | H | H | H |
| A7 | S | S | S | S | S | S | S | H | H | H |
| A8 | S | S | S | S | S | S | S | S | S | S |

2) DOUBLE vs. DO NOT DOUBLE

| Player's 2-card total | Dealer's up-card 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | X | A |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 | | | | | | | | | | |
| 9 | | Db | Db | Db | Db | | | | | |
| 10 | Db | Db | Db | Db | Db | Db | Db | Db | | |
| 11 | Db | Db | Db | Db | Db | Db | Db | Db | Db | |
| 12 | | | | | | | | | | |
| AA | | | | | | | | | | |
| A2 | | | | Db | Db | | | | | |
| A3 | | | | Db | Db | | | | | |
| A4 | | | Db | Db | Db | | | | | |
| A5 | | | Db | Db | Db | | | | | |
| A6 | | Db | Db | Db | Db | | | | | |
| A7 | | Db | Db | Db | Db | | | | | |
| A8 | | | | | | | | | | |

NEVER TAKE INSURANCE

| | KEY |
|---|---|
| Sp | SPLIT |
| Db | DOUBLE |
| | NEXT CHART |
| H | HIT |
| S | STAND |

**Figure 2**

#### Card-counting systems

*Card-counting systems* are used by players to reduce the casino's advantage further, and under certain conditions, to give the player an advantage. Unlike roulette and many other casino games, events are not independent in blackjack because cards are removed from play without being replaced for several rounds. This changes the statistical makeup of remaining cards as well as the optimal playing strategy and the odds of winning subsequent hands. Thus, a true optimal strategy will incorporate past cards played out of the shoe and will vary both betting and playing strategies accordingly. Systems that do so are called card-counting systems.

It should be noted that even these systems do not involve *optimal* strategies in terms of expected value. To keep track of the exact make up of all the cards in the deck, to calculate their ratio to one another, and then to determine the exact best playing strategy and the player's consequent expected value based on this information is not reasonable for even the

most gifted card counters because it is cognitively too difficult for the unaided human mind. It is possible to do so with the aid of a computer, but illegal. Instead, card-counting systems rely on rules of thumb (heuristics) based on the recognition that when the remaining cards are relatively rich in nines through aces, the player has an advantage. When the remaining cards are relatively rich in twos through sevens, the casino has an advantage.

For nearly all card-counting systems, the counter assigns positive values to low cards that have been removed from the shoe (usually from +1 to +3, depending on the particular card value and its effect on player advantage), and negative values to high cards (usually from –1 to –3). The counter then adds these values together to obtain a *running count.* Since the statistical significance of a particular count depends on the number of cards remaining to be dealt, advanced systems usually require that the count be normalized by dividing this number by some fraction of the number of decks remaining to determine the *true count.* When card-counters determine that they have an advantage, they bet as much as they can get away with and that their bankroll allows. [2]

The count also affects the playing strategy. For most hands, there is a particular count at which the player varies from the basic strategy, whether this involves choosing to hit, stand, split, double or take insurance in violation of the basic strategy. When the count is low, there is a lower relative frequency of high cards remaining in the deck. Both the player and the dealer are thus less likely to receive high cards. The player will therefore both hit more often and double down and split less often than the basic strategy would prescribe. When the count is high, there is a higher relative frequency of high cards remaining to be dealt. Thus the player will hit less often and double down and split more often than usual.

Even skilled card counters will have a difficult time making a living counting cards, and I doubt it is possible for any to make an impressive living. The reason for this is that the casinos take several precautions in order to foil proficient card counters. Dealers, pit bosses and casino surveillance systems all keep a lookout for potential card counters. Knowing what to look for, it is not difficult to spot. If the casino determines the counter is sufficiently skilled to warrant interference, they have the option to either bar the player entrance to the casino, or simply to instruct the dealer to shuffle the cards every time the player increases his or her bet, among other possibilities. Thus, while card-counting strategies can give the player a slight statistical advantage over the casino, it is probably no more than one per cent given the best realistic casino conditions (Uston, 1981). The exact advantage depends largely on particular casino norms and their system for handling card counting as well as on the range of techniques used by the card counter.

## Ethnographic findings

The ethnographic findings are divided into five parts. Part one discusses the degree to which players adhere to basic strategy and discusses cases for which they systematically deviate from this strategy using what will be termed "pseudo-basic strategy." Part two considers players' systems for keeping track of and responding to cards removed from the shoe, which is referred to here as "pseudo-card counting systems." Part three examines systems players use to affect the quality of cards received. Part four explores systems used to help players determine the size of their bets during a particular round. Part five asks the question of whether it is appropriate to assume players are trying to maximize their expected return. Finally, part six summarizes these research findings.

## Pseudo-basic strategy

Of the 75 or so players I observed during my ethnographic work, not one used the basic strategy consistently. The fact that no one did so is particularly surprising since the strategy can be learned in less than an hour and some variation of it has been printed in nearly every blackjack book published over the last 35 years. The gift shop in both Indiana casinos sold books with the basic strategy in them. Nonetheless, even most of the more experienced players consistently violate the basic strategy on particular hands. For example, nearly all players take even money on a blackjack, and a clear majority stand on 16 against a dealer's 10, even though both plays violate the basic strategy.

An obvious question is "Why?" Do experienced players know the basic strategy and choose not to use it? Do they just not know it? Or have they learned some skewed version of it from other people at the table? The answers to these questions are unfortunately hard to come by, but it appears that a partial "yes" is appropriate to each. Many experienced players knowingly violate the basic strategy. In some cases this is because they do not believe basic strategy is entirely accurate, while in other cases it is because they have conflicting strategies that override basic strategy. More commonly, experienced players know *of* the basic strategy, believe it works, *and believe they play according to it,* but what they have learned from playing in casinos is not faithful to the strategy.

One problem in completely understanding this phenomenon is that, just as players' knowledge of basic strategy is usually partial, so is their knowledge of exactly what the term "basic strategy" means and why the strategy should be trusted. Patrons commonly refer to "playing by the book," and they are often aware of subtle discrepancies in play that are part of the basic strategy. At the same time, it is not clear what "playing by the book" or "basic strategy" means to these players other than "the right way to play." As such, it will be useful to distinguish between the actual basic strategy (the best way to play each hand given that the player is not keeping track of cards removed from the shoe) and pseudo or folk basic strategy (the players' conceptions of the best way to play each hand, independent of whether or not these conceptions are correct).

The following dialogue may demonstrate the complexity of the issue. This conversation took place between myself, a Nepalese man with the pseudonym Arvind who has lived in Chicago for the last six years, and an American woman from Chicago whom I will call Susan. Both consider themselves experienced blackjack players. This conversation began shortly after a brief description of my research interests.

"I'm the dealer and I have a two showing and you have a two. What do you do?" Susan asked this question of Arvind. (Here, the player's "two" is shorthand for 12.)

"I hit," he says.
"What about a three against a two?" she asks.
"A 13 against a dealer's two?" (I ask to be sure.)
"Yes, yeah, if the player has a 13 and the dealer has a two up."
"I stand then," Arvind said.

This is pure basic strategy. It represents a cutoff between when to hit and when to stand and is a common test in blackjack books for how well a person knows basic strategy. The statistical difference between whether it is better to hit or to stand on these two plays is small, and the cutoff itself violates a larger pattern in the basic strategy, [3] yet the most experienced players usually adhere to basic strategy in this particular circumstance. At other points in my conversation with them, Susan said she played "by the book," and both of them said they played "by the odds." All of these comments apparently indicated their recognition that a standard best way to play existed and they both adhered to it. When I asked what "the book" meant, Arvind explained, "You know, to play how you're supposed to play… by probability."

Nonetheless, when asked whether they take even money on a blackjack, both players said they did, which violates basic strategy, although the rule not to take even money is easy to remember. In addition, Susan was convinced that standing on a 16 was better than hitting when the dealer has a 10, and Arvind believed that taking insurance on a good hand (a 19, 20, or 21) was right. Both of these plays are common violations of basic strategy. Thus, one can see that while some understanding of basic strategy, or at least of a "correct" way to play, informs blackjack playing strategy, it does so only partially and somewhat unpredictably for many players.

Three of the most common violations of basic strategy will be discussed below. These include 1) taking even money, 2) insuring good hands, and 3) standing with "bust hands" against the dealer's seven through ace. There are other plays that appear to systematically violate the basic strategy. I did not get a clear sense of how frequently they occur or the reasons behind them, however, so I will not discuss them here.

**Even money**

The most common exception to the basic strategy at the Indiana casinos seems to be taking even money with a blackjack when the dealer has an ace showing. Most players do this, and they will sometimes vocally criticize other players for not doing so. The argument that commonly goes along with this play is, "You should always take a sure thing." The argument does not make complete sense to me, because the very act of betting in blackjack seems to reject the goal of a sure thing. The risk here, that the dealer will not get a 10 underneath, involves one of the few gambles available in the casino (not taking the "sure thing") in which the odds are in favor of the player. Nonetheless, players adhere to this deviation from basic strategy rather consistently, choosing not to gamble in one of the rare cases where the odds are in their favor to do so. And it does provide the player a sure opportunity to make a profit on that particular bet, which in that respect is a sure thing.

#### Insuring good hands

Another common play that violates the basic strategy is the decision to take insurance, which should never be made according to basic strategy. A conversation between myself and Arvind, inspired by Susan, demonstrates this point.

Susan volunteered that she never takes insurance, and Arvind responded, seeming somewhat surprised, "Oh, you don't?"
"You take insurance?" I asked.
"I play by the odds," he said.
"What do you mean?" I asked. "Do you always take insurance?"
"No, no, only when it makes sense. If I have a 19 or a 20."

I am not sure here what he meant by, "I play by the odds." Statistically speaking, the insurance bet is not affected by the quality of the player's hand, but rather by whether or not the dealer gets a blackjack, an independent event. Nonetheless, the strategy suggested by Arvind is a common one, although the alternative play, "Never take insurance," is perhaps equally or more common.

#### Standing with "bust hands" against the dealer's seven through ace

Another common violation of basic strategy is for players to stand with a 14, 15, or 16 — against a dealer's seven, eight, nine, 10 or ace. As the player's cards approach 16, and the dealer's card approaches 10, this violation appears to become more and more common. It also becomes more and more reasonable, statistically speaking, in terms of expected return. The difference between hitting or standing when the player has a 16 and the dealer has a 10 is almost insignificant in terms of the odds of winning or losing. What is interesting here, though, is the degree to which players favor the incorrect play. In Indiana, a majority of players seemed to stand with a 16 against a dealer's 10. Often they will urge other players to stand as well.

The following conversation between Susan and Arvind while riding on the shuttle bus provides the standard argument for standing with a 16 against a dealer's 10, as well as the standard argument for not doing so. Susan is continuing to ask Arvind about how he plays in order, it seems, to assess his blackjack skill. In this case, she has just asked him what he does with a 16 against the dealer's 10:

"Sometimes I hit and sometimes I stand," Arvind said.

"What, you don't play it consistent?" Again, the important role of consistent play is stressed. "Do you go with your *gut* ?" Her emphasis on the word gut sounded a bit disparaging as though she thought this was irrational or the sign of a bad blackjack player. "A dealer in Las Vegas once explained it to me this way," she continued, "the casino always hits on 16 and stands on 17 no matter what, and the casino has the advantage right? So it couldn't be better to stand on 16 when the dealer has a good hand or the casino would do it, too. You have to assume the dealer has 20." (The last sentence involves a somewhat separate argument from the rest.)

The first part of her argument states that a person should hit 16 because the dealer hits 16, and therefore it must be a good strategy since the casino has the advantage. This part of her argument does not mesh with some of her other avowed playing strategies, however. For example, earlier in the conversation she had said that she stands on a thirteen when the dealer has a two(12) showing. According to her current explanation, one would expect her to hit, since the dealer always hits a 13. On the other hand, if she did not allow herself this inconsistency in beliefs her performance would be affected for the worse. The use of inconsistent strategies that apply in some contexts and not in others is common among blackjack players, and it tends to improve the quality of their play.

Also notice the second part of her argument. "You have to assume that the dealer has 20," is not something that one "has to assume." In fact in more than two-thirds of the cases, the dealer will not have a 20, since fewer than one-third of the cards in the deck are 10-value cards, and a 10-value card would be required to give the dealer a 20. But the heuristic of assuming that the dealer has a 10 underneath is a common one that players often use to decide how to play.

In line with the previous example, however, it should be noted that the common practice of using this heuristic never, in my experience, disregards context. Thus, players who say, "always assume the dealer has a 10," do not mean, "even if you have an 18." They generally override this rule with another one, "Never hit with 17 or higher." This turns the heuristic from one that would be disastrous in terms of expected value to one that is quite functional.

"Listen to how I think of it," Arvind said. "You can hit and get an ace or a two or three, and the dealer still wins if he has a 20."

"Yeah but you'll lose if you don't hit. It's a 16 against the dealer's 20. You have to assume that."
"The dealer might bust," Arvind said.
"Not likely with a 10 showing," she said.

These two views represent fairly common perceptions among experienced players on both sides of the issue. Susan's argument is the more commonly accepted; Arvind's is more sophisticated in terms of probabilistic reasoning, incorporating some of the issues that make hitting versus standing with a 10 against a 10 such a close call. As mentioned earlier, however, the basic strategy calls for hitting instead of standing, the play that Susan has argued for. (Although recall that earlier Arvind said that sometimes he hits and sometimes he stands). Statistically the difference is almost arbitrary.

**Pseudo-card counting**

As with the basic strategy, a superficial knowledge of card counting is common, although it plays a less significant role in affecting playing strategies. Most players — beginners and experienced ones — have heard of card counting. Among beginners there is a common misunderstanding that this involves memorizing the specific cards that have been played out of the deck. Many if not most long-term players realize that card counting simply involves ascribing a positive or negative point value to the cards depending on whether they are good or bad for the player. Indeed, in my experience, most players who are relatively well-experienced know that high cards and aces remaining in the *shoe* are good for the player and low cards are bad. They also know that they should hit more when there are a disproportionate number of low cards remaining and stand more when there are a disproportionate number of high cards. Furthermore, many casino blackjack players say that they count cards, although they generally qualify it with terms such as "a little" or "when I want to get serious." Among the players from whom I was able to get a sense one way or the other, a clear majority deviate from their usual strategy in response to cards that have been removed from play.

At the same time, when pressed for details, even these players who call themselves card counters do not know the fundamentals, including a correct basic strategy. For these players, card counting usually means paying attention to cards that have been dealt out of the deck and using that information to inform subsequent plays. While these systems usually do involve a valid concern with the proportion of tens to non-tens expected to occur, they are not systematic. There is no predetermined "count" or relative frequency of cards at which point these players will increase or decrease their bets or change their playing strategies. Indeed, there is generally not an attempt at estimating overall relative frequencies at all. Thus, just as players make choices according to a pseudo-basic strategy that takes into account their own two-card total and the dealer's up-card, players also use pseudo-card counting systems that are sensitive to cards removed from the shoe and the directional consequences of these cards.

Unlike actual card counting systems, however, these strategies do not change the odds to the players' favor, and in most cases players would almost certainly do better to stick to their pseudo-basic strategies. The exception is in cases where these pseudo-basic strategies are wrong, in which case, of course, anything that leads to a change will improve their lot.

There tend to be three main pseudo-card counting strategies, all of which may or may not be used by a particular gambler. First, and least frequently, players may attempt to estimate relative frequencies of tens to non-tens remaining in the shoe. Thus, like actual card counters, they will be attuned to how many cards have been dealt since the previous shuffle, and they will have been watching for what appears to be a disproportionate frequency of tens or non-tens. If they think many more non-tens have been removed than usual, they may increase their bet for the following round, take insurance if the dealer has an ace, double down with hand totals of 11 or less, and stand more often than they normally would with potentially busting hands. This group is the most sophisticated of the pseudo-card counters. They tend to be very experienced and serious players and they have often studied card counting at some point in the past. Since they do not have a method for estimating actual ratios of tens to non-tens, and since they do not know what ratio would be significant for particular strategy or bet changes, they are still largely involved in guesswork. While such players will commonly be encountered at the blackjack table, they nonetheless make up a small minority of perhaps five or 10 per cent of all people at the table or perhaps less.

Players of a second type are far more common. Often people from the first group fall into this category as well. While these players are also concerned with the relative frequency of tens to non-tens, they are not focused on the total number of cards dealt from the shoe. They believe that if tens and non-tens are approximately equally represented in a deck of cards, then even small samples from the shoe should approximate this distribution. If the small samples do not do this, then these players expect subsequent cards to "even things out," or bring the short-term relative frequency back to approximately 50/50 (or whatever distribution they see as normal). When asked, most of these players will be fully cognizant of the fact that there are a certain number of high and low cards in the deck, and that when low cards are removed, this leaves a certain number behind, but they have the additional expectation that even small samples of cards from the shoe should represent the larger distribution. This corresponds to what Tversky & Kahneman (1974) call the representativeness heuristic, and more particularly what they call the "law of small numbers" (Tversky & Kahneman, 1971). This is the belief that small sample sizes should be more representative of the population from which they are drawn than is warranted. The belief is taken a step further in this case, however, and in a related expression of what is commonly termed "the gambler's fallacy" (Kahneman, Slovic & Tversky, 1982). These players do not simply believe the unrepresentative frequency of high or low cards is less usual than it in fact is. They also believe that it will

tend to be set right by the cards that immediately follow (as opposed to being gradually and randomly set right through the course of the shoe, as is in fact the case). As a consequence, members of this group see the current round of play as the most important. Since it is easier to simply pay attention to the current round, they tend to do so. Unlike the first group, these players generally do not use this information in making betting decisions; rather, they use it only to decide how to play their hands as well as to try to influence what cards the dealer will subsequently receive.

A third group is similar to the second, and might be seen as simply a more extreme version. For members of this group, the most recent cards are also the most diagnostic of future probabilities, but for this group this is true even if it is clear that a representative sample of high and low cards have occurred. Thus if three tens are followed by three fives, players commonly believe a high card is due to occur, since the three low fives occurred most recently. This corresponds to a sequential response bias (Wagenaar, 1972) and was identified by Keren and Wagenaar (1985) in their study of blackjack players in the Netherlands. Even the most experienced players express a specific concern with the most recent cards, independent of relative frequency. This is true even if the six cards are all displayed side by side face up on the table, and even if there are exactly the same number of each type of card. Because the most recent cards are seen to be the most predictive of the cards that immediately follow, these players often prefer to sit at the final spot before the dealer, which is commonly called *third base,* using a baseball analogy. There they will sometimes take cards when they normally would not, or not take cards when they normally would, specifically to influence what cards the dealer will subsequently receive. For example, if a high card is judged "due" and this high card would help the player but also hurt the dealer, the player may stand and leave the high card for the dealer.

While the first of these three pseudo-card-counting systems is relatively rare, the latter two, in one form or the other, are quite common and used by a clear majority of long-term blackjack players at the Indiana casinos visited for this fieldwork. Nonetheless, while all three systems can in some respect be seen as expressing a kind of gambler's fallacy, it should be noted that they are closely tied to the structure of blackjack and the fact that events are not independent in this particular game. Most of these same players would not use corresponding *betting* strategies, increasing their bets after a series of losses or decreasing their bets after a series of wins. And two players expressly stated (after being asked) that the same strategy would not work in roulette.

In all three cases, such "card counting" systems are generally worse than using basic strategy, since the disproportionate frequency of high or low cards generally needed to justify changing one's strategy tends to be rather larger than the players expect. There are several exceptions to this however. One example is with hitting or standing on a 16 against a dealer's 10, for which just one additional 10 in a six-deck shoe is sufficient

to make standing instead of hitting the preferred play. Furthermore, that particular hand is one in which players are most sensitive to these contextual cues, as observed earlier in the conversation with Arvind. Since the players are selective about which hands depend on previous cards removed from the deck, the total cost to their expected return may be quite small. Nonetheless, the net result of such strategies is almost certainly negative, assuming the only consideration is expected value.

**Luck and natural order**

Beliefs about luck and the ability to affect luck play an important role in blackjack, although I am unsure whether most of the players notice this, and I am not comfortable with the term "luck" as a descriptor since players do not always use the term. When a person comes to join the table they will ask, "How's the dealer?" meaning, "Are people winning or losing?" If a shoe is going particularly well for the players or if a number of blackjacks come up for them, a player at the table will often ask, "Who cut that?" and players may then agree to have the same player cut the deck for the next shoe. If a player's first card is an ace, other players, sometimes two or three seats away, will lean over and tap the table in front of the card, saying loudly, "good luck." The dealer will do the same thing even more consistently than the players. [4] If a player is sitting in a particular spot that receives several blackjacks, other players will ask jokingly if they can trade places. Still, even though these practices are shared by most people at the table, it is unclear whether people generally think they make a difference, or whether they are just going along with the fun or trying something that cannot hurt, even if there is little hope it will help.

My experience at the table suggests that any of these options can be the case, depending on the context. Players will sometimes retract playing advice when asked for a reason with statements such as, "It really just depends on how the cards fall that hand," or they may defend such advice with a smile and, "It can't hurt to try." In other contexts, though, most players seem to believe that there are ways of systematically affecting the quality of the cards for better or for worse. In these cases, it is not at all clear that the players would refer to their beliefs as anything other than rational.

Often the players themselves seem conflicted, as the following example suggests. I was playing blackjack with a friend and I left to go to the bathroom, and when I returned, we both played another hand and he won. He then said, "I lost consistently while you were gone, and now I'm winning again." What is interesting here is that my friend had already told me he did not believe such factors influenced the cards, and he repeated it again shortly after saying this, yet he still felt compelled to mention it, as many other blackjack players tend to do.

The cases in which most players seem to sincerely believe the quality of the cards can be affected all appear to involve a concern with maintaining

proper card order or disrupting improper order. These beliefs involve a number of factors that influence the order of the cards, including whether or not one plays "correctly" (according to the common pseudo-basic strategy), whether or not one plays consistently (recall Susan's concern that Arvind might play with his gut rather than playing consistently), how many hands are being played and where a person is sitting.

The concern with playing "correctly" is one of the most dominant. Most experienced players do not like to play with inexperienced players specifically because they believe it will hurt their chances of winning. This is a second reason many players will watch a table before joining. They like to determine the quality of the other players at the table before risking their money. The belief seems to be that if a person plays badly, they change the run of the cards that the other players "normally" would have received, and for whatever reason, this change tends to be for the worse.

Another important influence related to proper order concerns playing consistently. For example, the following exchange occurred between me and a floor supervisor I interviewed:

**"** What do you do with a 16 against a dealer's 10?" I asked him.
"Hit," he responded without hesitation.
"Do other players generally play this way, too?" I asked.
"Be consistent, that's the most important thing."
"Why does it matter?"
"Keeps the cards running," he said.

At this point, a dealer who was listening to our conversation gave his own answer to my question: "Because it keeps other players happy," he said. "If you have seven players you have seven experts who all think they know the right way to play."

"You don't want to change up the cards," the floor supervisor said. "If the cards are running hot, you don't want to change'em up."
"So cards run in streaks?" I asked.
"Yup," he said.

"I still don't quite understand the consistency issue. I would have thought that it would just be random whether a change in how other people play helps you or hurts you."

The dealer nodded his head and said, "That's exactly right."

The floor supervisor said, "But if the cards are running well you don't want to mess that up."

The dealer said again, "The reason you play consistently is to keep the other players happy. That's it."

What is perhaps most interesting about this exchange has to do with the role of this dealer. He seems not to believe that card order can predictably affect one's chances of winning and losing, and one might suspect, as I did, that this indicates more prolonged experience with blackjack. The opposite turned out to be true, however. He later said that he did not know how to play blackjack well at all and did not like to play cards. The floor supervisor, on the other hand, had at least a rudimentary knowledge of card counting, and he believed he knew how to play blackjack well. Furthermore, experienced blackjack players seemed nearly uniform in their concern with proper order. Something about the blackjack experience seems to promote a belief in the importance of proper order — whether or not such a belief is warranted — that less experienced blackjack players might not have.

Two other examples that involve concern with proper order are worth mentioning to highlight the strength of this concern. In the first, I was playing blackjack next to a man in his mid 40s.

"Do you always stand with a 16?" I asked him after he contradicted me by urging my friend to stand with a 16 against the dealer's eight.

"I do," he said. But then he smiled, and said, "Of course, whether or not it's smart to do really depends on how the cards go. It's most important just to play consistent."

After a pause, so that I did not seem argumentative, I asked, "How is it that playing consistently affects your game?"

"Not your game, the other players." The player to his right, a woman in her early 40s nodded in reaction to his response and occasionally shook her head in reaction to my questions. (I interpreted her to be showing disapproval at my apparent ignorance.)

"It's important that everyone is consistent so you know how they're going to play their hand."

"So you change the way you play depending on how the other players play?" I asked, knowing this was not the case, but not quite understanding the logic behind the "consistency" argument.

"No, I don't change the way I play, but if everyone plays consistently, we can get a sense of how the cards are falling. If people keep changing the way they play, then that messes up the way the cards fall. But it really depends on how the cards are falling. Doesn't matter how you play really. If people at the table are losing, I'll lower my bet until something changes. Or if we're winning and then someone leaves the table or a new person comes, I'll lower my bet to see how things are going. But it really just depends on if you're getting the right cards or not."

Later someone did join the table, and the man I had been speaking to said loudly enough for everyone to hear that he would pull back his bet — as he did so — to see what kind of luck the new person would bring.

In the final example, I am again speaking with Susan and Arvind on the shuttle. I asked Susan why it made a difference how other players at the table played and she explained that you want to play with all experienced players because inexperienced players "throw the cards off." They hit when they should stand and stand when they should hit.

Arvind nodded his head and said, "That's right." Susan said that players need to play consistently, and they need to play according to the book.

"So, the other players who don't play right actually change the odds for the worse for you?" I asked.

"That's right," she said as Arvind nodded his agreement. "It also just gets frustrating when you lose because someone else took a card they shouldn't have. Good players don't like to play with beginners because they throw the cards all off. You're playing by the book and someone plays wrong and it ruins things for the whole table. You gotta keep the other players in mind too. You can't just play for yourself."

Susan then began to talk about a man who came in for one or two hands and then left the table. This was given as an example of a person who did not "keep the other players in mind."

"So that's bad etiquette to come in for just a hand or two?" I asked.

Arvind nodded and said, "Oh, yeah."

Susan said, "Yes. It throws off the cards. Changes things up. Even if there's an empty spot where no one's playing, but the cards are running well for everyone, it's not polite to join the game. You should wait."

"Until the end of the shoe?" I asked.

"Yes," she said, "I always ask before I enter a game in the middle of a shoe, and I tell people to wait out until it's over if the cards are running well. If the cards are so-so, you win, lose, win, lose, then it doesn't matter. If the cards are bad, then you want a person to join the shoe." As she spoke, Arvind nodded regularly, showing his agreement.

"So this sounds like a concern with streaks of luck rather than something statistical," I said. When I asked the question I recognized that the issue of proper order may be quite distinct from beliefs about luck.

"Well, yes," she said, "I mean if the cards are running well you just shouldn't mess with that."

As with other discussions I have had with players about consistency, I am not sure what to make of these. It seems that these players are concerned with getting or keeping the cards in a certain pattern or order whereby they are winning more than losing. A number of factors are important, because they allow players to identify, and if necessary change, these patterns. Playing well or "by the book," playing consistently and playing the same number of hands from one round to the next sustain the patterns. Playing poorly, playing inconsistently or changing the number of hands from one round to the next disrupts the patterns. Keren and Wagenaar (1985) made many of these same observations in their interviews with Dutch casino patrons.

**Betting systems**

There are a number of systems, in addition to pseudo-basic strategy and pseudo-card counting, that players use in the belief that they increase their chances of winning. This section will focus on *betting* systems. Betting systems can be distinguished from other systems in that they are not believed to alter the likelihood of winning a particular hand. Instead they involve varying one's bet from one round to another with the goal of betting more on the winning rounds and less on the losing ones. Betting systems thus depend on methods for predicting which hands are more likely to win, and which hands less likely — before the deal takes place — and betting more or less accordingly. Card counting involves a betting system because part of the player's advantage comes from betting high when the odds are in the player's favor and betting low when the odds are in the casino's favor. It also involves a playing system, since it uses the basic strategy to minimize the casino's advantage, and it deviates from the basic strategy in certain cases when justified by the count.

I will discuss six blackjack betting systems here. The first three all involve increasing the size of one's bets when losing and/or decreasing the size when winning. They include: 1) increasing one's bet after an improbable series of losses because a win is due, the classic example of the gambler's fallacy, 2) negative progression betting systems such as the Martingale system and 3) chasing. The second three involve increasing the size of one's bets when winning and/or decreasing the size when losing. They include: 4) increasing one's bet after an improbable series of wins because the player is "hot" or on a roll, 5) positive progression betting systems and 6) betting big with the house's money. None of the systems are normative from an expected value point of view except to the degree that they lead to higher or lower average bets. It is also important to note that while all of the first three systems will sometimes be used, none of them are common. Often they are explicitly condemned whereas all of the last three systems appear to be the norm among experienced players and are taken to be signs of a good blackjack player. This is surprising since the first three strategies are most commonly associated with gamblers' false beliefs in the literature. As far as I am aware no previous research has identified the overwhelming preference among *experienced* blackjack players (and in my experience, gamblers more

generally) for increasing bets when winning as compared to increasing bets when losing.

#### Bet high after several losses because a win is "due": The gambler's fallacy

In blackjack, players will sometimes bet more after losing a number of hands with the belief that they are "due" for a win, expressing the gambler's fallacy. Although the gambler's fallacy may be the best known false belief commonly held by gamblers, and it does influence violations of basic strategy, it plays almost no role in blackjack betting strategies. Experienced players, in particular, almost universally endorse a system, described below, that may be seen as directly contrary to this fallacy.

#### Negative progression betting systems

Another well-known betting system that involves increasing the size of one's bets when losing is the Martingale system, a member of a class of negative progression betting systems. They are called *negative* progression rather than *positive* progression, because the bet is increased after a loss rather than after a win. With the Martingale system, players start with a large amount of money and begin with a unit bet, doubling it each time until they win, then returning to the base bet. Each time the player wins, he or she is ahead an additional unit bet. Players who use this strategy reason that the odds are small that the casino will win several times in a row, and infinitely small that the casino will keep winning forever. These two claims are true. As long as the players have enough money to keep doubling their bet, and the casino's maximum bet is high enough, they will eventually win.

This strategy is often co-expressed with the gambler's fallacy. So, for example, a gambler may wait for red to occur three times in roulette before placing their first minimum bet on black. At the same time, the system itself should not be taken as an example of the gambler's fallacy. The gambler's fallacy concerns events that have already occurred which are incorrectly judged to affect future probabilities. Martingale systems concern series of future events for the casino that are, in fact, increasingly improbable the longer the required series. Thus, Martingale systems, unlike common expressions of the gambler's fallacy, do usually work. That is, players will win more often than they will lose. The problem occurs when the player experiences the inevitable losing streak (i.e. when the player loses enough times in a row to deplete the entire bankroll or to reach the maximum bet allowed by the casino). In such cases, the cost to the player will be high enough on average to deplete all of the smaller wins, plus the loss of the casino's expected return on the total amount bet.

If players are looking for a way to maximize their chances of leaving the casino a winner on a particular visit and are not concerned with the high potential loss, Martingale-type systems work (Turner & Horbay, 2003). Furthermore, the success or failure of Martingale involves high variance, so that an individual's experience with it over even several months of

gambling may result in more money won than lost, providing many with apparent confirmation that the system works. Even then, if a player has had one big loss that cancelled out all winnings, she or he can often chalk this up to a failure to stick to the system. (This could include perhaps not bringing enough money to reach the casino limit, or perhaps losing faith in the system and backing off after the $1000 bet and, just then, finally winning. ). A player can also reasonably chalk a loss up to bad luck, since one or two losses out of several wins are not, in themselves, enough to know whether it is a failure in the system or simply the downside of random variation that led to a net loss.

As a result, many novice- and intermediate-level players use Martingale-type systems, but nearly all long-time players have learned not to use it, either from personal experience or vicariously through the experience of others. I encountered a few players who stopped using this system while still believing it probably works. After even one big loss, the conclusion, "I just can't stomach the risk," can outweigh the possibility of a winning system.

Players I have spoken with who continue to use this system do not seem to recognize this risk. The Nepalese man, Arvind, for example, told me very confidentially and confidently that he used this system for blackjack.

"Do you win at blackjack?" he asked.

"No," I said, "I don't think anyone can win at blackjack over the long run unless they count cards."

He surprised me by telling me that he thinks blackjack can be beaten, "if you have enough money and some luck," that is.

"You mean [you can win] over the long term betting on a regular basis?" I asked.

"Yes. But you need a lot of money. Here is what you do…" He went on to tell me the Martingale betting strategy that I just described.

Most players who use this system use it in roulette, not blackjack, and until this point I had never had anyone say outright that they believed blackjack could be beaten using such a system. There are two reasons the system might be less common in blackjack. First, the near 50/50 nature of blackjack is less salient than in roulette where it can easily be seen that half the numbers are red and half black, half even and half odd, once the zeroes are removed from the equation. It is in part this apparent 50/50 wager that makes the mathematics of Martingale so compelling. Second, even though blackjack provides relatively good players with a higher expected return than roulette, much of this benefit comes from the opportunity to *split* and *double down,* and from the three-to-two payout for a blackjack. The probability of losing an individual round in blackjack is

actually higher than in roulette, even for the perfect basic strategy player, and so the system will fail more often than in roulette. There are several similar systems to Martingale that involve systematic increases in bets with losses and decreases with wins. These systems are generally uncommon in blackjack, however, so they will not be discussed further.

#### Chasing

Rather than being a betting system, the term chasing usually implies a loss of control. It is the act of betting higher and higher amounts in the hopes of recouping unwanted losses. As with Martingale, chasing works more often than not, since just one win will be enough to recoup the losses, but in the event that it does not, and the gambler continues to lose until the losses can no longer be recouped with a single bet. The consequences can be devastating. I did not meet any blackjack players in Indiana who recommended chasing, though I observed what appeared to be chasing a few times, and two players admitted they were doing so. Experienced players who were not in the act of chasing universally condemned it, while many of these same gamblers admitted they occasionally lost control and did it. Since chasing usually works, it makes sense that it would be appealing specifically after a gambler has lost more than they feel they can afford to lose. Chasing offers a way out. It also makes sense that after a gambler has lost even the available money with which to chase, and subsequently come to terms with that loss, that they would see chasing as the potentially devastating practice that it is.

#### Bet high after several wins because the player is "hot": The hot hand cognitive illusion

Players using this system wait for a particular outcome to occur significantly more often than usual and then bet on it to occur again. When blackjack players use this system, it seems to come from a belief in patterns of luck. Players, the shoe, a particular spot and dealers all get "hot" or "cold", and many players bet low when they believe they or their cards are cold or the dealer is hot and bet high when they believe the contrary. This has been identified as the "hot hand cognitive illusion" (Gilovich, Vallone & Tversky, 1985) and was described specifically for gamblers, and blackjack players in particular, as a belief in luck as distinct from chance (Keren & Wagenaar, 1985; Wagenaar & Keren, 1988). Nearly all experienced players increase their bets after wins and decrease them after losses, often with the explicit justification that they are hot. Indeed, many players will not sit at a table until they have seen whether the dealer is hot or cold. Unlike the three previous systems that involve increasing bets after losses, the belief that luck runs in identifiable streaks and can be bet on to the player's advantage, appears to be shared by a clear majority of experienced blackjack players. Many players believe that betting high when the cards are hot and low when the cards are cold is the single most important factor to winning in blackjack. While they accept that long-term probability favors the casino, many of these players believe they can use their knowledge of streaks to take

advantage of short-term fluctuations in luck, and by doing so gain an advantage over the casino.

#### Positive progression betting

Far more common in blackjack than Martingale and other negative progression systems are positive progression systems whereby players systematically increase their bets after wins. Usually this involves increasing bets by some fraction of the previous bet until a loss occurs, then either returning to the base bet or reducing the bet by the same fraction that it was increased. Often there are stopping rules such as, "return to the base bet after three wins." Often the increase depends on the overall bet size such that the player may stop increasing by half once the bet reaches $50. Often the maximum bet size depends on the total amount of money the player has won or lost during the playing session such that the player will progress to higher maximum bets the more they have won. The systems may be more or less codified and depend more or less on intuition from one player to another. Positive progression betting usually co-occurs with a belief that outcomes run in streaks as discussed above, and it is difficult to separate one from the other. This betting system tends to be the behavioral expression of the belief in streaks.

#### Betting with the house's money

Many players bet more when they are ahead overall for the day. Experimental researchers (Thaler & Johnson, 1990) similarly found that people tend to be more risk-seeking with money won than money earned. The researchers labelled this the "house money" effect in recognition of this being a common characteristic among casino gamblers. It should be noted that not only are casino gamblers more risk-seeking after winning, but they tend to believe such a strategy is normative.

Thus, an informant who came to the casino with me explained after I had a particularly successful playing session, "Will, Anna and I were talking, and we agreed that you really need to bet your money when you're up like that. It's the only way you'll ever really win. You have to bet big when you get some money from the casino."

I said, "Yes, but my way I won't lose it all either."

"Well, that might be true," she explained, "but you'll never have a really big win either."

### Do gamblers really play in order to maximize expected return?

Perhaps the reason for common violations of the basic strategy is that the players have other goals in addition to or instead of maximizing their winnings. One question I had, then, was what other reasons patrons had for playing the game. What were their goals? Along with the hope of winning, there are three main goals that the game of blackjack appears to

satisfy. All three may be interdependent, though, and I was unable to clearly distinguish between them.

The first goal was simply to have a good time. As the floor supervisor I interviewed put it, "Some people are just bored. I mean, what do you do in Indiana ?" Several players, including the regulars I spoke with — most of whom were from Chicago — confirmed this notion. One woman, in explaining why she chose one casino over the other, said, "They take your money wherever you go, but at least they can be friendly about it." Another said he would come to the casino every day if he could afford it. And at least three others stated that they gambled for enjoyment, not because they expected to win. Variations on the phrase, "I just come to have fun; I don't expect to win," are common enough that they might be considered cultural scripts.

A second reason, which cannot be cleanly distinguished from the first, may be the desire for social interaction. Players did not talk about this, but the behavior at the tables and on the shuttle suggests that part of the experience of the game involves friendly interaction with other people. Shuttle drivers and patrons often know each other by name and they speak about other players and drivers who are not present by name as well. People at the table often come to the casino together or know one another from past casino experiences. Players also frequently comment on other players' cards, complimenting them when the cards are good, sympathizing when the cards are bad, wishing one another luck, and offering advice on how to play. Although players at some tables did not speak at all, for the most part blackjack appeared to be a friendly social experience.

The desire for fun or for social interaction notwithstanding, the hope of winning seems to be a constant characteristic of blackjack players. A distinction should be made here between players who *expect* to win, and those who expect to lose but still *hope* to win. It became apparent from different conversations that many players expected to win. One floor supervisor said that many people played in order to make a living, although I could not tell how successful such people were or what fraction of the patrons had this in mind. A dealer said that 99 per cent of players thought they had a system to beat the casino. Several players also told me that they had winning systems.

In my experience, though, most players know the odds are against them and that they will probably lose. Nonetheless, I never encountered anyone who gave me an indication that they did not at least hope to win, and conversations frequently referred to past great wins by the speaker or people who were observed to win large amounts. While having fun and social interaction are certainly part of the experience, the hope of winning, even among gamblers who know the odds are against them, also plays an important role.

The interaction of these goals can have important repercussions and

could explain a number of violations of basic strategy. For example, one player hesitantly made the choice to double down, saying, "What the heck, I came here to gamble," a reason that was given by another player for never taking insurance. Another player explained that she never splits her tens because it makes everyone else at the table so upset, even though she sometimes likes to do it when she is playing alone. Another said, "I always split twos no matter what. Splitting is much more fun and twos often turn into a good hand, so why not." In a last example, a player explained that he knows taking even money is a bad play statistically, but that he likes to do it because, "it's the worst feeling in the world to get a blackjack and then not win anything at all." All of these are examples where other goals besides maximizing expected value influence playing decisions.

Finally, it is worth noting a possible relationship between the betting systems discussed in the previous section and gambler utility. The first three betting systems, all of which call for higher bets when losing, have unique consequences on winning experience from the latter three systems, all of which call for higher bets when winning. Using these latter systems, players will actually leave the casino as winners less often than when using Martingale-type systems or chasing, since they will tend to bet higher amounts specifically when they are ahead, increasing the probability that they will lose all of their winnings. At the same time, the average and maximum size of their winning sessions will be larger, since on the less common occasions when these gamblers do end their gambling sessions as winners, they were making larger than usual bets. Finally, the average and maximum size of their losing sessions will tend to be smaller, since on the occasions when these gamblers are losing, they will lower their bet sizes, thus risking less while also reducing the probability of breaking even.

The differential structure of winning and losing experiences may play a significant role in why increasing bets when winning and decreasing them when losing is far more popular than the opposite set of strategies, particularly among the most experienced players. An occasional big win, while avoiding costly large losses, may have more utility to the gambler than an occasional big loss with few if any big wins, even if the favored strategies result in fewer winning sessions and even if both sets of strategies have the same, slightly negative, expected value. Indeed, Turner (personal communication, 2003) observed that positive progression betting systems create a payout structure similar to that built into the design of slot machines, the most popular casino gambling activity of all. Perhaps the utility of an occasional big win outweighs the cost of frequent though affordable losses, even if the objective sum of these losses over the long term is greater than the sum of the wins.

## Summary of research results

It should be recognized that experienced players conform well to the basic

strategy, but they also make a number of choices that systematically violate it. Players themselves often believe that these violations correspond to the basic strategy and refer to their strategies as "playing by the odds," "by the book" or "by basic." Others realize their own plays violate the strategy published in books, but they believe the books' strategies are wrong and that their own personal basic strategy is correct. As such, it is worth distinguishing these folk- or pseudo-basic strategies from the actual mathematically-derived basic strategy. The violations of basic strategy seem to involve a partial misunderstanding or ignorance of what basic strategy really means, as well as a belief in the norms at the table, which occasionally differ systematically from basic strategy.

Proficient card counters are exceedingly rare. Nonetheless, experienced players use a number of techniques related to past cards removed from the shoe and incorporate basic tenets of card counting, though these systems probably hurt the players more than help them in terms of expected value. Just as the folk conceptions of basic strategy might be termed pseudo-basic strategy, these folk conceptions of card counting might be termed pseudo-card counting, in order to distinguish them from the more precise mathematically-derived methods.

There are also a wide range of practices and beliefs related to the ability to influence the outcome of cards. These sometimes include idiosyncratic methods such as carrying a lucky charm or circling one's chair at the beginning of every shoe. More often they include practices acknowledged by the group to work, such as having a particular person cut the cards, or tapping on the table when a player gets an ace to wish them luck in getting a blackjack. The most common practices and beliefs have to do with a concern with proper order. Players will pay attention to how many hands are dealt at the table, the playing strategies people are using and how well people are playing, and try to keep this all consistent if the gamblers are doing well, or change it if the gamblers are doing poorly. They will urge others to play consistently and to play according to group norms with the explanation that to do otherwise is bad for the entire table.

Another factor affecting blackjack strategies are betting systems that use previous sequences of wins and losses to determine how to bet. One set of strategies calls for increasing one's bets when losing and decreasing one's bets when losing. A second set of strategies calls for increasing bets when winning and decreasing bets when losing. Although all systems are relatively well known, the first set of systems are quite rare among experienced players (except, perhaps, chasing), and none of them are condoned as good strategies, whereas the second set of systems are widely practiced and condoned among even the most experienced players.

For the most part, blackjack players seem concerned with maximizing their winnings. However, they also have additional goals. These include a desire to have fun or to be entertained, a desire for social interaction and unique goals related to both the hope of winning and the subjective

experience of winning that cannot be reduced to expected value.

## Conclusion: Implications for research into gambling behavior and problem gambling

At the beginning of the article it was noted that a number of researchers see gamblers' false beliefs about winning and their suboptimal strategies as an important factor in why so many people gamble and why some people become problem or pathological gamblers and others do not. The implication is that the biased or irrational cognitions of the gambler are the source of these false beliefs and suboptimal strategies. These claims suggest three important questions: 1) Do frequent gamblers really tend to have false beliefs about winning and suboptimal strategies for doing so? 2) If so, do these false beliefs and suboptimal strategies contribute to their decision to gamble and to their progression from occasional gambling to problem gambling? And 3) are the false beliefs and suboptimal strategies really the consequence of biased or irrational thinking on the part of the gambler? I will consider each of these questions with reference to the research findings.

Before delving in, however, two caveats are important. First, gamblers are a diverse group and blackjack players are no exception. For one subset of blackjack players the answers to all of these questions are undoubtedly "yes." Many blackjack players have persistent false beliefs about their chances of wining. These false beliefs likely directly contribute to their decision to gamble and to their difficulty in stopping. Furthermore, the source of these false beliefs may often be the biased or irrational cognitions of the individual, either through the expression of traditional heuristics and biases or through motivated reasoning. For another subset of players, the answers to all three questions are likely "no." These players understand the probability and dynamics of the games they play as well as can be expected of any skilled practitioner. They gamble either because they have a system for winning which seems reasonable, given the available information about the activity, or because they have other reasons for gambling besides the expectation of winning money. This discussion will focus on the group most commonly observed during the ethnographic research, and this group does not fall neatly into either of these two extremes.

Second, the quality of the data obtained during the ethnographic research does not allow me to categorically answer any of these questions, particularly the second. I have few means by which to know whether blackjack players' false beliefs and suboptimal strategies led to their choice to play blackjack, and I have even fewer means to assess causes of problem gambling behavior that were not a category of inquiry for the study. At the same time, the ethnographic findings have implications for all three questions, and these implications will be considered here.

**Do frequent blackjack players really tend to have false beliefs about**

**winning and suboptimal strategies for doing so?**

The short answer to this question is "yes." Experienced blackjack players have false beliefs in a number of areas: about the best way to play each hand; about the impact of cards removed from the shoe; about their ability to influence which cards they and others will receive; about the predictable nature of patterns of wins and losses and what might influence these patterns; and about the relationship between past wins or losses and future probabilities of winning or losing. At the same time, it should be recognized that most of these false beliefs have only a minor impact on the player's expected return. This may be particularly true since deviations from basic strategy seem to be limited to hands for which violating basic strategy is the least costly. Furthermore, the one set of strategies that have the largest impact on the players' expected returns — betting strategies that influence average bet sizes — have important consequences for the gambling experience that may provide utility beyond expected value. Thus, while blackjack players may be incorrect to believe increasing their bets after wins increases their chances of being a long-term winner, these strategies may have survived and thrived specifically because they tend to contribute to other positive features of the gambling experience. As such, the long answer to this question may be that gamblers have both true and false beliefs and better and worse strategies, but the false beliefs and suboptimal strategies tend not to have serious negative implications and may provide benefits and safeguards about which not even the gambler is consciously aware.

**Do these false beliefs and suboptimal strategies contribute to their decision to gamble and to their progression from leisure gambler to problem gambler?**

This research suggests that experienced blackjack players have a rich set of strategies and beliefs, many of which have unquestionably developed in the context of the blackjack playing experience. Their strategies and beliefs, both true and false, provide part of the structure of the blackjack playing experience and undoubtedly contribute to the utility of playing blackjack. In part at least, the game is enjoyable because it involves learned skills that more experienced players actually use.

This is not simply the illusion of control (Langer, 1975) or the illusion of skill, even if the consequences of the strategies do not improve one's chances of winning. For example, although I studied card counting, I might nonetheless make systematic errors in keeping the count that lead me to raise my bets and to deviate from the basic strategy in cases where I should not. If I do this frequently enough, I may perform worse than a player who simply bets the minimum and plays by the basic strategy. Even if this is the case, my decisions are still based on a trained skill, and the application of this skill significantly contributes to my enjoyment of the game and the utility I get from playing.

Similarly, experienced blackjack players may be better than beginners at

noticing patterns in outcomes and these likely influence their probability of winning during a particular gambling session because of their corresponding betting systems. Also, they probably do apply unique skills (that I, for example, do not have) for deciding when to take cards or not take cards based on which cards were removed from the deck. And all of this undoubtedly contributes to their enjoyment of blackjack and to their decision to play, just as their correct beliefs and working strategies do.

Do these strategies and beliefs contribute to problem or pathological gambling? Probably "yes" for some players, probably not for others. False beliefs and suboptimal strategies likely contribute to problem gambling in three ways. First, from an impulse control perspective, they contribute to the enjoyment and the "action" of the gambling experience, including many of the features that make it difficult to stop playing, even for a beginning gambler. Second, also from an impulse-control perspective, they make it more likely that the player becomes committed to the game to a point when their own best judgment and self-control, which originally may have been adequate to stop them from gambling, is not adequate any longer. Third, to the degree that these false beliefs lead gamblers to incorrectly believe they can win, they make it more likely that gamblers will lose more than they can afford, with serious consequences.

At the same time, most of the gamblers I encountered sincerely enjoy the blackjack playing activity and seem to have developed healthy strategies for playing over an extended period without risking too much. Specific playing strategies, while not perfect, are correct more often than not, and the endorsed betting systems seem designed to specifically ensure that players will not lose more than they can afford while still having the chance to occasionally experience a big win, which for many gamblers may be precisely what attracts them to the gambling activity.

**Are false beliefs and suboptimal strategies really the consequence of biased or irrational thinking on the part of the gambler?**

This, for me, is the most important question. An implicit assumption in much gambling research is that their suboptimal strategies and false beliefs are consequences of shortcomings in the reasoning processes of the individual; correct their biased and irrational cognitions and the problem will be solved, this view suggests. The current research suggests that the false beliefs are, to an important extent, the consequence, not the cause, of gambling activity. The most experienced players have a rich set of strategies and beliefs that they appear to have learned during the gambling experience. These are largely shared and reinforced by their gambling community and carry with them complex models of cause and effect, as well as apparent empirical verification — both from the personal experience of the players and from the experience of other "experts" within the domain, including casino personnel.

In my view, these strategies and beliefs are as rational and unbiased as other strategies and beliefs commonly used during decisions made

throughout much of a healthy individual's life. That is, they are neither rational and unbiased, nor irrational and biased. Rather they involve the best judgments available to the players given their gambling experiences and the available information, with occasional motivated reasoning mixed in for good measure. It was not a matter of unbiased or rational cognition any more than it was a matter of biased or irrational cognition that led me to the belief that I could make good money counting cards in blackjack, or to the subsequent belief that I could not. Nor is it a matter of unbiased or rational cognition that led me to the conclusion that these players do not improve their expected return by increasing their bets after a win, or that led them to their conclusion that they can. Rather, these beliefs depend importantly on complex structural features of the environment within which they and I developed our strategies and beliefs. These include not just the physical structures, but also the information available, the belief systems of other members of the community and the complex experiential feedback given the environmental structure and dynamics.

I have no empirical evidence that the cards do not get hot or cold in ways that are predictive of future outcomes. I accept that they do not because of my training and experience outside the gambling domain, just as the gamblers accept that they do because of their training and experience inside the gambling domain. I have never been able to convince an experienced blackjack player who holds these beliefs that they are wrong (and I have tried several times), but in my view this is not because they are being irrational. Indeed, they can often provide better empirical evidence and rational arguments than I can. I am sometimes forced to admit that I take it on faith that hot and cold streaks, beyond the unpredictable expectations of random variation, do not occur.

The implication here is that the persistence of erroneous beliefs held by gamblers may depend more on characteristics of the gambling environment than it does on the irrational or biased quality of the gamblers' reasoning. Indeed, once the structure and dynamics of the gambling environment are taken into account, many of the strategies and beliefs that originally seem biased or irrational may be seen to be inseparable from the gambling context, including its sociocultural context, and to be both rationally and empirically justified.

## Notes:

(Click on the note number to return to the text.)

1 "Expected winnings" will also be referred to as "expected value" and "expected return" in different parts of the text.

2 The size of the player's bankroll turns out to be a very important factor for card counters. With an advantage of one or two per cent, even skilled card-counters will usually end up significantly down at some point during their playing period just due to normal random variation. Among mathematicians interested in gambling, the study of risk management, or the proportion of one's bankroll that should be risked

given a particular advantage and a particular variance, is something of a sub-field in its own right.

3 The pattern can be constructed from the following dictum: "Always stand when both you and the dealer could bust by taking one more card, assuming that the dealer has a 10 in the *hole.*" The exception, as discussed during this conversation, is when the dealer has a two or a three showing, and the player has a 12, in which case the player should hit.

4 I thought at first that the dealer was trained to do this, and that perhaps the players learned it from them, but I later noticed that not all dealers engaged in the practice, and those who did were sometimes inconsistent (in one case, this behavior was directed favorably toward those players who were tipping the dealer).

## References

**Baldwin, R., Cantey, W., Maisel, H. & McDermott, J. (1956).**
The optimum strategy in blackjack. *Journal of the American Statistical Association, 51,* 429–439.

**Baucum, D. (1985).**
Arguments for self-controlled gambling as an alternative to abstention. In W. R. Eadington (Ed.), *The Gambling Studies: Proceedings of the Sixth National Conference on Gambling and Risk Taking* (Vol. 5, pp. 199–204). Reno, NV: University of Nevada, Reno.

**Cornish, D.B. (1978).**
*Gambling: A Review of the Literature.* London: Her Majesty's Stationery Office.

**Eadington, W.R. & Cornelius, J.A. (Eds.). (1994).**
*Gambling Behavior and Problem Gambling.* Reno, NV: Institute for the Study of Gambling and Commercial Gaming.

**Farmer, E. (2002). Blackjack Basic Strategy Calculator (Version 5.0)**
Available:
http://www.bjmath.com/bjcomputer/computer/gamegen.htm

**Gilovich, T., Vallone, R. & Tversky, A. (1985).**
The hot hand in basketball: On the misperception of random sequences. *Cognitive Psychology, 17,* 295–314.

**Gu, Z. (2002).**
Performance gaps between U.S. and European casinos: A comparative study. *UNLV Gaming Research & Review Journal, 6* (2), 53–62.

**Hayano, D. M. (1978).**
Strategies for the management of luck and action in an urban poker

parlor. *Urban Life, 6* (4), 475–488.

**Hayano, D.M. (1982)**
*Poker Faces: The Life and Work of Professional Card Players.* Berkeley: University of California Press.

**Henslin, J. (1967).**
Craps and magic. *American Journal of Sociology, 73* (3), 316–330.

**Janecek, K. & Tesinsky, J.A. (2003).**
Statistical Blackjack Analyzer (Version 5.52). Available: http://www.sba21.com/

**Kahneman, D., Slovic, P. & Tversky, A. (Eds.). (1982).**
*Judgment Under Uncertainty: Heuristics and Biases.* Cambridge: Cambridge University Press.

**Keren, G. & Wagenaar, W.A. (1985).**
On the psychology of playing blackjack: Normative and descriptive considerations with implications for decision theory. *Journal of Experimental Psychology: General, 114* (2), 133–158.

**Kweitel, R. & Allen, F.C.L. (1998).**
Cognitive processes associated with gambling behaviour. *Psychological Reports, 82* (1), 147–153.

**Ladouceur, R. (1993).**
Causes of pathological gambling. In W. R. Eadington (Ed.), *Gambling Behavior and Problem Gambling* (pp. 333–336). Reno, NV: Institute for the Study of Gambling and Commercial Gaming.

**Langer, E.J. (1975).**
The illusion of control. *Journal of Personality and Social Psychology, 32,* 311–328.

**Lesieur, H.R. (1984).**
*The Chase: Career of the Compulsive Gambler.* Cambridge, MA: Schenkman Books.

**Lesieur, H.R. & Rosenthal, R.J. (1991).**
Pathological gambling: A review of the literature. *Journal of Gambling Studies, 7* (1), 5–40.

**Morais, R. C. (2002, 4/29/02).**
The stakes get higher. *Forbes*. Available: http://www.forbes.com/global/2002/0429/024.html

**Oldman, D. (1974).**
Chance and skill: A study of roulette. *Sociology, 8,* 407–426.

**Revere, L. (1980).**
*Playing Blackjack as a Business.* Secaucus, NJ: Lyle Stuart.

**Spradley, J.P. (1980).**
*Participant Observation.* New York: Holt, Rinehart and Winston.

**Thaler, R.H. & Johnson, E. J. (1990).**
Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management Science, 36* (6), 643–660.

**Thorp, E.O. (1966).**
*Beat the Dealer.* New York: Vintage.

**Turner, N. & Horbay, H. (2003).**
Doubling revisited: The mathematical and psychological effect of betting strategy. *Manuscript in preparation for publication.*

**Tversky, A. & Kahneman, D. (1971).**
The belief in the "Law of Small Numbers." *Psychological Bulletin, 76,* 105–110.

**Tversky, A. & Kahneman, D. (1974).**
Judgment under uncertainty: Heuristics and biases. *Science, 185,* 1124–1131.

**Uston, K. (1981).**
*Million Dollar Blackjack.* Hollywood, CA: Gambling Times.

**Volberg, R.A. (2002).**
*Gambling and Problem Gambling in Nevada.* Northampton, MA: Gemini Research.

**Wagenaar, W.A. (1972).**
Generation of random sequences by human subjects: A critical survey of the literature. *Psychological Bulletin, 77,* 65–72.

**Wagenaar, W.A. (1988).**
*Paradoxes of Gambling Behavior.* Hillsdale, NY: Lawrence Erlbaum Associates.

**Wagenaar, W.A. & Keren, G.B. (1988).**
Chance and luck are not the same. *Journal of Behavioral Decision Making, 1,* 65–75.

**Walker, M.B. (1985).**
Explanations for gambling. In G. T. Caldwell, M. G. Dickerson, B. Haig & L. Sylvan (Eds.). *Gambling in Australia* (pp.146–162). Sydney: Croom Helm.

**Walker, M.B. (1992).**
*The Psychology of Gambling.* Oxford: Pergamon.

**Wildman, R.W.I. (1999).**
*Gambling: An Attempt at an Integration.* Edmonton, Alberta: Wynne Resources

## Appendix: Glossary of blackjack terms

**basic strategy/playing by the book:**

The *basic strategy* indicates the best way to play each hand without using a counting system (or cheating), assuming the player's goal is to maximize expected return. It is often referred to as *playing by the book.* It depends on the make up of both the player's cards and the dealer' s up-card, and it varies slightly depending on the particular blackjack rules in one casino or another.

**blackjack:**

In addition to being the name of the game, *blackjack* is a two-card 21 (i.e., any 10-value card with an ace). It beats all other types of 21 (i.e., all 21 with three or more cards). If the player gets a blackjack the casino pays the player three to two.

**bust:**

*Busting* is the act of getting a point total higher than 21, which results in an automatic loss. If both the player and the dealer bust, the player still loses. This is the only tie in which the player loses and is the source of the casino's advantage in blackjack.

**busting hand/bust hand:**

*Busting hands* or *bust hands* are hands lower than 17 that will exceed 21, and thus bust, if they are hit with a 10. That is, they are hand totals from 12 to 16. When the dealer has a two through six showing, these hands are also commonly called busting hands, since it is often assumed that the dealer has a 10-value hole card and these are in fact the up-cards for which the dealer is most likely to bust.

**card counting/card counters:**

*Card counting* is a method for keeping track of past cards removed from the deck in order to give the player an advantage. Card-counting systems usually require the player to 1) assign plus and minus values to low and high cards, respectively; 2) add these values as the cards are removed from play; 3) normalize this sum based on the number of cards remaining to be dealt; and 4) adjust playing and betting decisions according to the this normalized number. Under ideal circumstances, using such systems can give the player an advantage over the casino.

**dealer:**

The *dealer* works for the casino. Players win or lose depending on how their cards perform against the dealer's cards. The

dealer must play according to predetermined rules set by the casino that do not depend on the players' hands. Usually these rules require the dealer to *hit* with 16 or less and to *stand* with 17 or more, although hitting with a *soft* 17 is also common.

**double down:**
Players who *double down* are required to double the size of their initial bet. In turn they get exactly one additional card. Players have the option to do this after the deal, but only with their initial two cards or with the new two-card hand created after *splitting.*

**even money:**
See *insurance.*

**first base/third base:**
*First base* refers to the first person to the dealer' s left. This is the first person to play after the deal. *Third base* refers to the player closest to the dealer's right. This is the last person to play before the dealer.

**floor supervisor:**
See *pit.*

**hard hand/soft hand:**
Hands without an ace or hands for which the ace can only legally be used as a one are called *hard hands.* If the ace can be used as either an 11 or a one, this is called a *soft hand.* For example, if the player (or dealer) has an ace and a five this is referred to as a soft 16 (not a soft six). The dealer often refers to it as "six, 16, " to indicate the two different possible values. Players can hit this hand without risk, since even receiving a 10 would only make the hand a hard 16.

**hit:**
*Hitting* is the act of taking an additional card. Players tap their fingers or move their hands toward themselves to indicate that they want to hit.

**hole card:**
The *hole card* is the face down card in the dealer's hand. Players do not get to see this card until after they have finished making their play choices.

**insurance/even money:**
If the dealer has an ace showing, players have the option to place half their initial bet onto a special spot to take *insurance.* The dealer then looks at his or her hole card. If there is a 10-value card, thus giving the dealer a blackjack, the insurance bet pays two to one, thus covering the initial bet. If the player has a blackjack when the dealer has an ace up, the player has the option to take *even money.* That is, the player can win

exactly the amount of their original bet, before the dealer checks his or her hole card for a blackjack. This compares to not taking even money and either winning three to two for the blackjack, or pushing and winning nothing if the dealer ends up having a blackjack. Taking even money turns out to be monetarily identical to taking insurance. Both plays have a negative expected return.

**pit/pit boss/floor supervisor:**

Table games are arranged in an oval so that all of the players are on the outside facing dealers who are inside. The inside of this oval is known as the *pit. Pit bosses* are the highest level of manager within a pit. *Floor supervisors* are similar to pit bosses except that their domain is smaller. They are responsible for supervising anywhere from one to four tables depending on the game and the time of day, whereas the pit boss is responsible for the entire pit.

**push:**

When the player and the dealer tie (have the same point total) this is called a *push.* The player neither wins nor loses.

**shoe:**

The *shoe* is a plastic box that holds the decks after they have been shuffled. The dealer draws cards from the shoe to deal to the players. Blackjack games use from one to eight decks. One or two deck games do not use a shoe; four, six, and eight deck games do.

**soft hand:**

See *hard hand.*

**split:**

If the first two cards dealt to a player are the same (including any two 10-value cards), the player has the option to double his or her bet, *split* the two cards and play them as two separate hands. Players can split the same card up to three times in a single hand (thus playing up to four separate hands). Players can only split aces once, and they are not allowed to hit after each ace is made into a two-card hand. If either or both of the split aces get tens, they are not treated as blackjacks but instead as standard twenty-ones. That is, they lose to a dealer blackjack, push to a dealer's 21, and only payout one to one, rather than three to two.

**stand:**

Players *stand* when they have finished making all play choices, except when they bust. In other words, standing involves the choice to stop taking additional cards. Players signal this by holding their hand (flesh and blood, not cards) horizontally

above their cards and waving it back and forth.

**third base:**
See *first base*.

*This article was peer-reviewed. All URLs were active at the time of editing.*
*Submitted: August 11, 2003*
*Accepted: December 8, 2003*

**For correspondence:**
*Will Bennis, Doctoral Candidate*
*Committee on Human Development & Department of Psychology*
*University of Chicago*
*5730 S. Woodlawn Ave.*
*Chicago, IL 60637*
*U.S.A.*
*E-mail: w-bennis@uchicago.edu*

*Will Bennis is a PhD candidate in Psychology and the Committee on Human Development at the University of Chicago. In February 2004, he will begin a postdoctoral fellowship at the Center for Adaptive Behavior and Cognition at the Max Planck Institute for Human Development in Berlin. His research concerns how belief systems and the sociocultural environment influence decision-making processes and conceptions of rationality. His particular focus is on casino gamblers' strategies for and beliefs about winning.*





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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

*[This article prints out to about 17 pages.]*

# Of time and *The Chase*: Lifetime versus past-year measures of pathological gambling

*By Marianna Toce-Gerstein*
*Dean R. Gerstein*
*National Opinion Research Center at the University of Chicago*
*Washington, DC U.S.A.*
*E-mail:*
*mtgerstein@norc.uchicago.edu*

## Abstract

**Objective:** This analysis tested whether past-year measures can be shown to have methodological advantages over lifetime measures of pathological gambling based on DSM-IV criteria.

**Methods:** Two stratified random-sample surveys (n=2,417, n=530) of gambling behavior and correlates were conducted with community-based U.S. adults. A fully structured questionnaire, administered by trained interviewers, screened for lifetime and past-year prevalence of the 10 DSM-IV criteria for pathological gambling.

**Sample**: The study sample comprised 1,216 gamblers who were administered the pathological gambling screen, with particular attention given to the 400 gamblers who reported one or more gambling-related problems.

**Results:** Pathological gambling criteria as measured by lifetime items showed greater consistency with past-year items than was true for other levels of gambling problems. Neither lifetime nor past-year measures were positively related to the age of the respondent.

**Conclusion:** These findings deny the presumptively greater accuracy of past-year over lifetime measures of pathological gambling based on DSM-IV criteria in prevalence studies in the general population. In view of greater conceptual fidelity to DSM-IV concepts, lifetime measures appear preferable

to past-year.

**Keywords**: pathological gambling, Diagnostic and Statistical Manual of Mental Disorders, chronic disease.

## Introduction

In the foreground of Professor Lesieur's vivid, seminal study *The Chase: Career of the Compulsive Gambler* (1977) were painstakingly acquired life-history interviews with 50 people he classified as compulsive gamblers, complemented by 20 interviews with frequent but noncompulsive gamblers and bookmakers. Lesieur placed these data within an experiential and ethnographic background of gambling venues, Gamblers Anonymous meetings and Massachusetts prisons. He developed a formulation of compulsive gambling that focused not only on the specific behavioral and psychological components of the disorder, but also on its temporality. His analysis emphasized the recurrent cycles of abstinence and relapse across the years of the compulsive gambler's career, as well as the "cyclical movement of the gambler's spiral" — the compulsive gambler's way of juggling indebtedness so as to maintain fiscal viability until all options foreclose. For Lesieur's compulsive gambler, the chase was not a short, straight run. It was a long haul with many stops, loops and backtracks.

A few years after *The Chase* was published, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) of the American Psychiatric Association (APA) recognized pathological gambling as a distinctive disorder (APA, 1980) and subsequent research advances led to refinement in the diagnostic criteria in later editions (APA, 1987, 1994). The DSM continues to attend to the content as well as to the temporal dimensions of symptoms. In the current, fourth edition (DSM-IV), which was heavily based on a clinical survey of more than 200 pathological gamblers, pathological gambling is broadly defined as follows:

…*persistent* and *recurrent* maladaptive gambling behavior…that disrupts personal, family, or vocational pursuits.… The gambling pattern must be *regular* or *episodic* and the course of the disorder is typically *chronic* (APA, 1994, pp. 615–617; *emphasis added*).

The DSM-IV goes on to identify 10 specific measurement criteria and specifies that, if any five of the 10 have ever been present, it is sufficient to establish the diagnosis of pathological gambling. Chasing gambling losses in order to recoup funds is one of these criteria.

The DSM–IV diagnostic rule depends only on the total accumulation of discrete symptoms. Although the generic definition of pathological gambling clearly specifies persistence and recurrence, and some of the items incorporate temporal referents such as "often," the diagnosis does not require that all or indeed any of the criteria be concurrent or clustered in time (for example, all occurring within a two-week, six-month, or one-year period),

but rather emphasizes the diversity of symptoms a person exhibits across the lifetime.

## Objective

An increasing number of surveys of the general population use screening items based on the DSM-IV — rather than the older version of the DSM on which the classic South Oaks Gambling Screen was based (Lesieur & Blume, 1987) — to study the prevalence and correlates of pathological gambling. One line of methodological criticism of prevalence studies using lifetime screens is based on temporal considerations. Shaffer, Hall and Vander Bilt (1997) note that the lifetime items used in these studies generally do not measure the extent to which the criteria are concurrent — occurring close together in time — as opposed to being spread out across different time periods. This is in contrast to the degree of concurrence that is assured when the temporal scope of screening items is tightly restricted, such as items limited to the past year.

Concurrence is not an explicit part of the DSM-IV definition. Nevertheless, one can speculate that gamblers in the general population who are flagged as pathological by lifetime survey measures may not be equivalent to the clinical populations on whom the measures were originally validated. These gamblers may have experienced much less actual disruption in their lives if their problems were not as concurrent as in the clinical samples of gamblers. Because the DSM-IV says nothing regarding the significance of concurrence of symptoms, one can speculate that gamblers whose symptoms are not concurrent may not truly meet the basic DSM-IV stipulation of "persistent and recurrent maladaptive behavior" (APA, 1994, p. 615). In short, the lifetime items could potentially yield many false positives. For this reason, Shaffer and colleagues (1997) argue that estimates of pathological gambling in the general population that are based on lifetime measures are inflated and they recommend that epidemiologists of pathological gambling rely instead on a past-year (or other "current") timeframe "as the most accurate measure of the existence of clustered indicators of a gambling disorder" (1997, p. 64). This recommendation has the effect of reducing survey estimates of the prevalence rate of pathological gambling in the general population (e.g. Gerstein et al., 1999) by one-half.

The objective of the present analysis is to empirically assess this line of reasoning. The speculative superiority of past-year over lifetime items is based not on specific findings but on theoretical reasoning. It is based on two hypotheses: first, that lifetime symptoms are, in general, less concurrent than past-year symptoms, and, second, that nonconcurrent symptoms are less debilitating or severe than concurrent ones. The second hypothesis is difficult to test directly without an independent measure of severity (that is, a measure separate from DSM-IV, which only counts the numbers of symptoms). However, one can test it indirectly. The first hypothesis, that past-year measures are more concurrent, can be directly tested with available survey data.

If lifetime measures of pathological gambling captured symptoms that are typically less concurrent, or more spread out across time, than past-year measures, then we should expect many individuals with five or more symptoms in their lifetime who present fewer than five symptoms in any given year. However, measures restricted to the past year very likely still underestimate concurrence, since a respondent may have experienced concurrent symptoms in a 12-month timeframe that is not the same as the 12-month timeframe stipulated by a given survey. In fact, it would be absurd to assume that everyone who has ever experienced five or more symptoms during the course of a year experienced five or more symptoms within the specific 12-month timeframe referenced by a questionnaire. For example, consider that an interview is conducted with a pathological gambler who has abstained from gambling in the past six months. However, in the past year, she reports having experienced two symptoms. A survey that only requests information about problems in the past year cannot determine whether, in the prior 18 months, the respondent experienced an additional three symptoms. In such a case, the respondent would have experienced five symptoms within a 12-month timeframe (and a recent one, at that), but would not be diagnosed as pathological per the survey's definition. Nevertheless, this respondent may still be in need of treatment to prevent relapse. Therefore, the DSM makes no requirement that symptoms be within the immediately preceding 12 months.

In short, the past-year measure is not an exact indicator of 12-month concurrence; it is only a rough estimate. The past-year measure would tend to underestimate 12-month concurrence just as surely as the lifetime measure might tend to overestimate it. Given that our questionnaire does not pin down the timeframe more tightly than lifetime and past-year, how can we decide whether the past-year measure actually represents concurrent symptoms more accurately than the lifetime measure?

**Relative consistency**

One simple but indirect test is a comparison of the consistency between lifetime and past-year pathological symptom levels relative to the consistency of lower levels of gambling problems between lifetime and past year. If lifetime pathological gambling is really capturing a recurrent and persistent disorder, then it should have more consistency through the life course than at-risk or problem gambling. If lifetime and past-year pathological gambling are more consistent over time than other levels, one can have greater confidence that lifetime pathological gambling is a good measure than if it is less persistent than other levels.

**Age relatedness**

A clear implication of the presumed nonconcurrence of the lifetime measure is that gamblers who are older should have accumulated more nonconcurrent lifetime problems than gamblers who are younger; in other words, there should be a positive correlation between age and the number of lifetime problems. This implication is clearly recognized by Shaffer and

associates (1997, p. 64): "Theoretically, the phenomenon of overestimating prevalence as a result of 'non-clustered' symptoms will increase as the age of respondents increases, since older respondents have more opportunities to experience isolated symptoms; therefore, older respondents have more opportunity to reach the threshold for lifetime pathological gambling." In other words, if lifetime measures overestimate prevalence, then age and number of lifetime symptoms should be positively correlated. If they are not — if the correlation is zero or especially if it is negative — then this critique of the accuracy of the lifetime measure loses its force.

However, an even sharper test may be formulated. Shaffer and colleagues argue that the overestimation of pathological gambling due to the accumulation of isolated symptoms should increase with age. But what about *clustered* symptoms? In 1999, the National Research Council's review of the literature indicated that the group most at risk for pathological gambling is young adults. This vulnerability may be especially exacerbated for individuals who have grown up with higher levels of acceptance and availability of gambling opportunities than earlier generations (Azmier, 2000). A direct implication of these points is that, if Shaffer and colleagues are correct about the fidelity of past-year scores in capturing clustered symptoms, past-year scores should correlate negatively with age. Therefore, if we were to find that past-year scores negatively correlate with age and lifetime scores positively correlate, this would support the superiority of past-year scores. Conversely, if we found lifetime scores negatively correlate but past-year scores not so, this would indicate that lifetime scores provide the preferable measure.

## Methods

The data used here were collected as part of the Gambling Impact and Behavior Study, conducted in 1998-1999 by the National Opinion Research Center at the University of Chicago and partners at Gemini Research, Christiansen/Cummings Associates and The Lewin Group. The study was carried out for the congressionally appointed National Gambling Impact Study Commission. A full explication of the conduct of this study and its findings can be found in Toce-Gerstein, Gerstein and Volberg (in press) and Gerstein and colleagues (1999).

### Participants

The Gambling Impact and Behavior Study included a random-digit-dial telephone survey and an in-person survey of gambling facility patrons. The telephone survey was designed to represent all adult U.S. household residents (age 18 or higher) at every level of gambling behavior, including no gambling activity. The telephone screening completion rate was 75.3% of households and the interview rate among eligible respondents was 73.7%, for a net response rate of 55.6%, comprising 2,417 adults who completed a 30-minute structured interview regarding their demographics, gambling behavior and attitudes and related factors, including a DSM-IV-based

diagnostic screen for pathological gambling.

The patron survey was designed to sample gamblers randomly but in proportion to their frequency of gambling, in order to capture large additional numbers of frequent gamblers relative to the household survey. Five hundred thirty respondents completed 20-minute interviews. These respondents were chosen from a stratified sample of randomly selected gaming facilities in eight states, including tribal and nontribal casinos, riverboats, racetracks and lottery ticket outlets. The distribution of facilities was roughly proportional to the annual receipts of these facility types. Interview teams at each facility followed rigorous sampling rules to select and recruit respondents at random exits or main internal traffic corridors during staggered shifts. The interview completion rate across all venues was 50.0%, a rate comparable to high-quality RDD telephone surveys.

Sample selection, field procedures and related methodological details of the surveys were extensively reviewed by independent research experts and reported in detail in the final report to the Commission (see Gerstein et al., 1999). The report, instruments and datasets from the study are easily accessible via the Internet (see Author's notes at the end of the article).

## Questionnaire

The structured interviews employed in both the telephone and patron-intercept surveys included a new diagnostic module for pathological gambling based on the DSM-IV criteria. The specific items that make up the NORC Diagnostic Screen (NODS) for gambling problems, with their corresponding DSM-IV criteria, are displayed in Table 1.

Table 1. DSM-IV criteria and matched NODS questions*

| Label | Source | Text |
|---|---|---|
| **Preoccupation** | *DSM-IV*** | *"is preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble)"* |
| | NODS #1 | Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about your gambling experiences or planning out future gambling ventures or bets? OR |
| | NODS #2 | Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with? |
| **Tolerance** | *DSM-IV* | *"needs to gamble with increasing amounts of money in order to achieve the desired excitement"* |
| | NODS #3 | Have there ever been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement? |
| **Withdrawal** | *DSM-IV* | *"is restless or irritable when attempting to cut down or stop gambling"* |
| | NODS #4 | Have you ever tried to stop, cut down, or control your gambling? AND |
| | NODS #5 | On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable? |
| **Loss of control** | *DSM-IV* | *"has repeated unsuccessful efforts to control, cut back, or stop gambling"* |
| | NODS #6 | Have you ever tried *but not succeeded* in stopping, cutting down, or controlling your gambling? AND |
| | NODS #7 | If so, has this happened three or more times? |
| **Escape** | *DSM-IV* | *"gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)"* |
| | NODS #8 | Have you ever gambled as a way to escape from personal problems? OR |
| | NODS #9 | Have you ever gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression? |

| | | |
|---|---|---|
| **Chasing** | *DSM-IV* | *"after losing money, often returns another day to get even ("chasing" one's losses)"* |
| | NODS #10 | Has there ever been a period when, if you lost money gambling one day, you would return another day to get even? |
| **Lying** | *DSM-IV* | *"lies to family members, therapist, or others to conceal the extent of involvement with gambling"* |
| | NODS #11 | Have you ever lied to family members, friends, or others about how much you gamble or how much money you lost on gambling? AND |
| | NODS #12 | If so, has this happened three or more times? |
| **Illegal acts** | DSM-IV | *"has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling"* |
| | NODS #13 | Have you ever written a bad check or taken money that didn't belong to you from family members or anyone else in order to pay for your gambling? |
| **Risked relationships** | DSM-IV | *"has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling"* |
| | NODS #14 | Has your gambling ever caused serious or repeated problems in your relationships with any of your family members or friends? OR |
| | NODS #15 | ASK ONLY IF R IS IN SCHOOL Has your gambling caused you any problems in school, such as missing classes or days of school or your grades dropping? OR |
| | NODS #16 | Has your gambling ever caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity? |
| **Bailout** | DSM-IV | *"relies on others to provide money to relieve a desperate financial situation caused by gambling"* |
| | NODS #17 | Have you ever needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling? |

Prior to the deployment of the NODS, the screen was pilot-tested for reliability and validity in a random telephone sample of 45 respondents in the Chicago metropolitan area, as well as in a convenience sample of 40 persons recently enrolled in gambling treatment programs in several other states. Ninety-five percent of the clinical sample scored in the pathological range (five or higher) on the lifetime NODS and the remaining two cases scored four. The test-retest reliability of the screen was investigated in a half-sample of 44 cases drawn equally from these clinical and telephone samples. Lifetime and past-year NODS scores were found to be highly reliable (Pearson r=0.99 and 0.98, respectively).

Of the 2,947 adults who participated in the two surveys, 2,602 reported any lifetime gambling behavior. Respondents were administered a detailed battery of questions concerning an exhaustive set of gambling types and venues. In our survey, a "gambler" was anyone who told us she or he had ever placed a bet, in the United States, in a casino, racetrack, jai alai fronton, off-track betting parlor, cardroom, or the Internet; or had purchased lottery tickets; played bingo; participated in charitable gambling; played private games such as dice or pool in someone's home; gambled on machines, pinball or pull-tabs in a store, bar, restaurant, truck stop, etc.; or engaged in illegal gambling. In order to limit costs associated with the survey, the NODS was administered only to those gamblers who reported ever losing more than $100 in a single day, or across a single year, gambling on one or more of these games. This resulted in a subset of 1,216 gamblers who were administered the NODS. Of these, 400 reported one or more DSM-IV criteria and 64 reported five or more.

The DSM-IV specifies that meeting five or more criteria establish a diagnosis of pathological gambling, thus dividing the symptomatic population into those reporting one to four criteria and those reporting five to 10. The taxonomy

developed by NORC was comprised of low-risk gamblers (score of 0), at-risk gamblers (1 or 2), problem gamblers (3 or 4) and pathological gamblers (5 or more). For this investigation, we consider individuals both by level of taxonomy as well as across the range of possible NODS scores (0–10). These items were asked on a lifetime basis and the corresponding past-year items were asked of those who endorsed the lifetime item and reported gambling in the past year. A cross-tabulation of the past-year and lifetime results for the gamblers included in these analyses is summarized in Table 2.

Table 2. Patterning of past-year NODS scores among lifetime gamblers

| | **Past-year status** | | | | |
|---|---|---|---|---|---|
| **Lifetime status** | Nongambler (n=117) | Low-risk (n=902) | At-risk (n=131) | Problem (n=35) | Pathological (n=31) |
| Low-risk (n=816) | 10.4 | 89.6 | — | — | — |
| At-risk (n=278) | 8.3 | 54.7 | 37.1 | — | — |
| Problem (n=58) | 3.4 | 25.9 | 34.5 | 36.2 | — |
| Pathological (n=64) | 10.9 | 6.3 | 12.5 | 21.9 | 48.4 |

*Note: Low-risk indicates a NODS score of 0; at-risk, 1–2; problem, 3–4; pathological, 5 or more. Note that one's past-year NODS score cannot be higher than one's lifetime NODS score. Row totals may not sum to 100% due to rounding.*

### Data analysis

In some previous reports that used these data to estimate overall U.S. population prevalence and correlates of problem and pathological gambling, the survey samples were merged and weighted using a dual-frame method [1]. This paper's objectives are better served by a simple unweighted aggregation of the two pertinent subsets of respondents. Among other advantages, this permitted the inclusion of 20 cases that were omitted from the weighted data due to the dual-frame sampling and permitted the use of Fisher's exact test, which cannot be performed on weighted data. As a check, the programs used for this investigation were run on the weighted and unweighted data where possible. The weighted results were similar to the unweighted results.

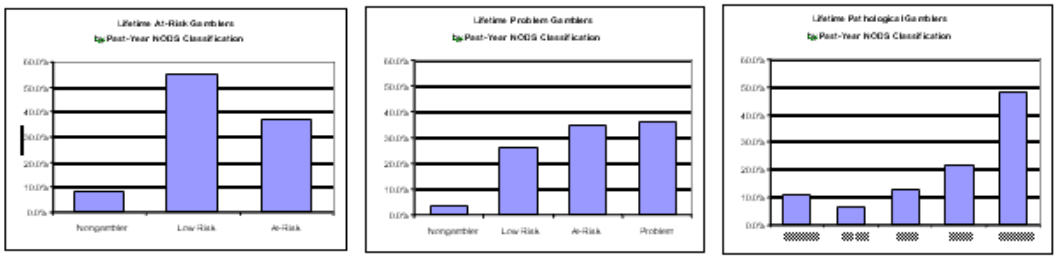
## Results

### Relative consistency

Figure 1 (based on Table 2) displays the distribution of past-year NODS scores according to the lifetime taxonomy (note that the past-year NODS

score cannot be higher than the lifetime NODS score). These results do not accord with the predictions of differential concurrence. For at-risk and problem gamblers, about 37% were at the same level in the past year, while 48% of pathological gamblers were at the same level. Moreover, whereas the majority of lifetime at-risk gamblers and one-quarter of lifetime problem gamblers were without symptoms in the past year, only 6% of lifetime pathological gamblers were gambling without symptoms in the past year. Among pathological gamblers, the proportion of those gambling without symptoms was much smaller than the proportion who chose to abstain from gambling altogether (10.9%), in stark contrast to the pattern among the nonpathological gambling groups. As computed using the Fisher exact test, pathological gamblers are significantly more likely than problem gamblers ($p=0.01$; two-tailed) and at-risk or low-risk gamblers ($p<0.001$, two-tailed) to report abstaining from gambling in the past year than to report having gambled without symptoms.

Figure 1. Past-year NODS scores of at-risk, problem and pathological gamblers

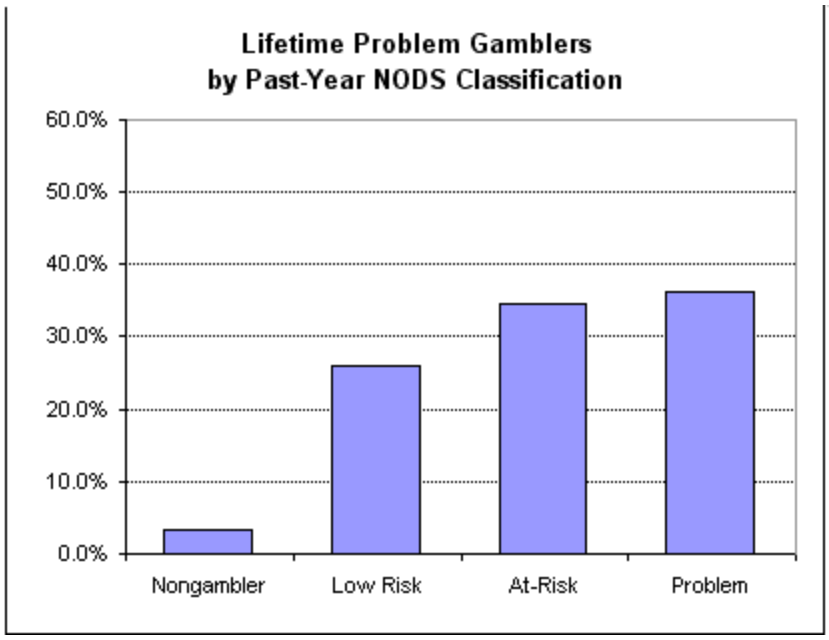


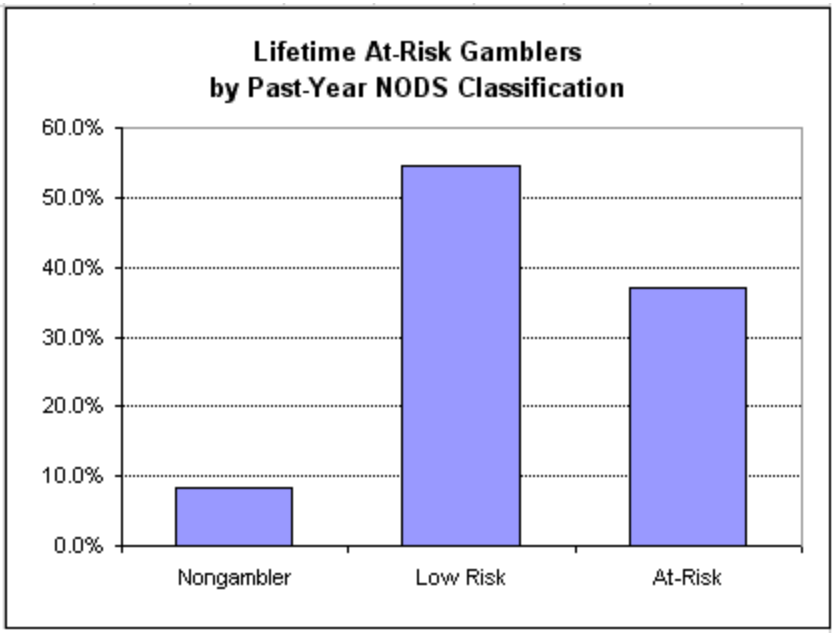

(Click on an individual image above to display a larger version.)

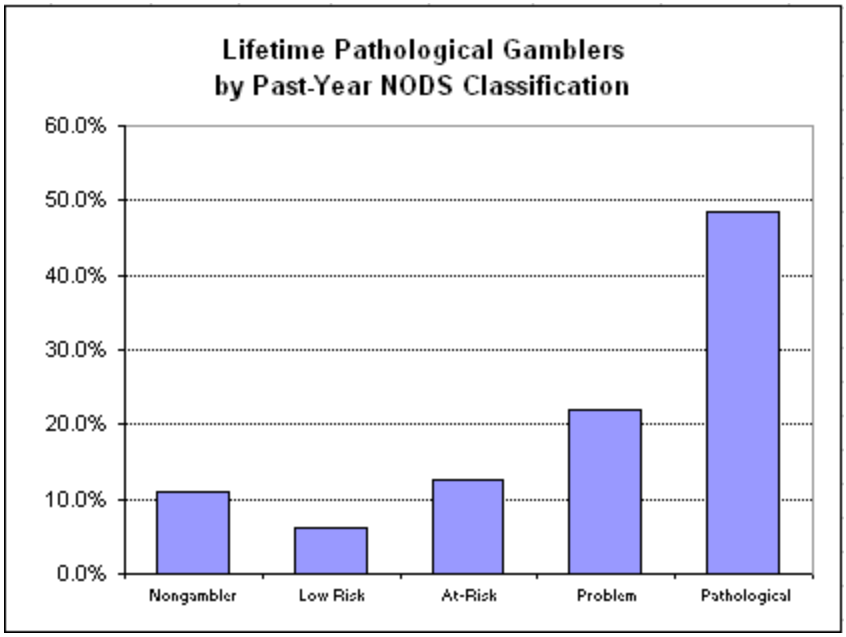
As a separate test, we identified those gamblers in our sample who reported ever receiving any kind of help or treatment for gambling problems, including self-help groups or help from professionals (e.g., doctors, counselors). Only 10 respondents in the sample reported ever receiving such treatment, including one lifetime at-risk gambler (0.4% of the at-risk group), two problem gamblers (3.4% of the problem group) and seven pathological gamblers (10.9% of the pathological gamblers). Due to the modest proportion of pathological gamblers who reported receiving treatment, we compared the distribution of pathological gamblers by past-year score, both inclusive and exclusive of those who reported treatment, but found no discernable difference between these groups. It is interesting that none of the lifetime pathological gamblers who abstained from gambling in the past year reported having ever sought treatment.

**Age relatedness**

Overall, our sample (n=1,216) ranged in age from 18 to 92 years, a mean age of 46.7 years, a standard deviation of 15.4 and a median of 44 (modest positive skew). The distribution of lifetime NODS scores ranged from 0 to 10, with a mean of 0.8, standard deviation of 1.7 and a median of 0 — this


Lifetime Problem Gamblers
by Past-Year NODS Classification
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Nongambler
Low Risk
At-Risk
Problem


Lifetime At-Risk Gamblers
by Past-Year NODS Classification
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Nongambler
Low Risk
At-Risk


Lifetime Pathological Gamblers
by Past-Year NODS Classification
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Nongambler
Low Risk
At-Risk
Problem
Pathological

distribution was highly skewed. The distribution of past-year NODS scores ranged from 0 to 10, with a mean of 0.44, standard deviation of 1.3 and a median of 0 — this distribution was also highly skewed. Age and the two NODS scores were transformed into their natural logarithms prior to calculation of Pearson correlations, in order to better satisfy the assumption of normality. (The results were found to be very similar to the untransformed scores.)

A negative correlation coefficient was obtained between age and lifetime NODS score ($r = -0.08$, $p<0.01$). The correlation between age and past-year NODS score was not significantly different from zero ($r = -0.05$, $p=0.35$). These results contradict the hypothesis that lifetime scores overestimate true prevalence and support the use of the lifetime over the past-year measure.

We further split the sample into those respondents aged 30 years or younger at the time of the survey (n=197) and those aged 31 or older (n=1,019). Using log transformation, we found a significant negative correlation between age and lifetime score ($r = -0.21$, $p<0.01$) and between age and past-year score ($r = -0.18$, $p=0.02$) among the younger group. For older respondents, neither the lifetime ($r=0.02$, $p=0.6$) nor the past-year ($r=0.03$, $p=0.34$) correlation was significant. (This finding of no correlation was replicated in subsets of the older group, ages 31–40 (n=294), 31–50 (n=554), 31–60 (n=770) and each remainder age group, 41+ (n=725), 51+ (n=465) and 61+ (n=249)).

These results do not support that lifetime scores overestimate prevalence; they do suggest the possibility either of a cohort effect or of a difference in the ways that the very youngest age group interprets NODS items.

Finally, we checked whether any specific lifetime criteria were correlated with respondent age, using t tests to compare the mean age of all respondents who reported a criterion to the mean age of respondents who did not report that criterion. All age means for individual items fell between 42 and 47 years and the mean age of respondents reporting the criterion was younger than for those not reporting for each of the 10 items; however, all these differences were not significant except for the younger age of those reporting withdrawal ($p<0.01$), chasing ($p<0.02$) and tolerance ($p<0.05$).

## Discussion

Neither the concept of the chase elaborated by Professor Lesieur nor the quantitative diagnostic approach promulgated in the DSM-IV suggests that a short-term measure such as a "past-year" timeframe would be the ideal method for representing the temporal dimension of the chronic disorder of pathological gambling. Nevertheless, it seems important to investigate the issue of symptom concurrence or clustering as a potential supplemental criterion for pathological gambling. This is due in part to its status as a methodological issue as argued by Shaffer and associates (1997) and in part because, in our experience, this argument is often seized on by industry

advocates as grounds for casting discredit on epidemiological studies of pathological gambling.

In this analysis, we have asked whether evidence developed in two national, retrospective, cross-sectional datasets is compatible with a theory of differential concurrence, namely, that past-year measures capture symptom concurrence better than lifetime measures, making them more suitable for estimating the prevalence of pathological gambling.

Neither test supports the speculative advantage ascribed to past-year measures. We conclude that lifetime measures are at least as appropriate as past-year to implement DSM-IV concepts in cross-sectional epidemiological surveys. Indeed, there is better conceptual fit between the long view taken by lifetime measures and the definitional approach of the DSM-IV, with its roots in Lesieur's work. We, therefore, consider lifetime measures to be the natural default, at least until further research leads to refinements for which empirical evidence gives positive support to claims of greater accuracy.

Some students of pathological gambling may argue that, these methodological findings notwithstanding, only a past-year timeframe can yield a valid measure of current or *active case* prevalence — in other words, that an active case of pathological gambling is best defined as a person who meets five or more criteria all within the past year. The DSM does not specify this, but neither does it rule out the possibility of introducing such a refinement. However, it is equally plausible and consistent with the DSM-IV to argue that an active case should be defined as anyone with a history (lifetime prevalence) of pathological gambling who exhibits one or more criteria in the past year — as is true of 83% of this study sample of pathological gamblers.

Any conclusion about the appropriate level and severity of past-year items needs to be investigated and validated empirically, not rhetorically. An interest in advancing the level of empirical inquiry is what inspired the present analysis, which is admittedly based on a limited data resource — but no more limited than the data available to others who prefer alternative arguments. We believe that more extensive natural histories of symptom onset, concurrence, remission and relapse in the general population of gamblers would be more than welcome to epidemiologists and other researchers, whether derived retrospectively or through the use of repeated longitudinal panel interviews.

The conclusions we can draw from the existing data are limited in several ways. Our results could be biased if individuals at different levels of problems had different propensities to forget or deny individual items that occurred in the distant past. There is no evidence to suggest that such propensities differ by gambling level, but that does not rule out the possibility. Also, in this survey, as in nearly all others now available, respondents who experienced criteria in the past year were not asked whether they had also experienced the same criteria prior to the past year.

We therefore cannot determine with precision what proportion of past-year pathological gamblers first qualified for that designation in the past year — that is, we do not know about the incidence of the disorder, only its prevalence. In view of the "persistent and recurrent" characteristics of pathological gambling and the median age (mid-forties) of those in this category, it is implausible that the incidence rate in the year just before the survey was appreciably more than 5% to 10% of total prevalence.

A final limitation of the data pertains to a filter question used in the survey. The NODS was administered only to those respondents who acknowledged that they had ever lost $100 or more net on gambling in their lifetimes. The NODS developers chose to use this filter after pretesting indicated that infrequent gamblers grew impatient with repeated questions about gambling-related problems, seriously compromising survey response rates. At the time the NODS was being developed, the authors reviewed data from a number of recent state-level surveys and found that respondents who had never experienced significant losses did not report problems related to their gambling (see for example, Volberg, 1997a, 1997b). Evidence has since surfaced from one state in which a small but significant number of impoverished gamblers who spent little actual cash on their gambling nevertheless experienced gambling problems and, in a couple of cases, even pathology (Volberg, 2000). However, we believe that the greatest impact this restriction had on our analysis was in filtering out a larger proportion of low-risk and at-risk gamblers relative to other groups in our taxonomy.

## Footnotes

1. The dual-frame weighting method used sample weights to match the overall sample to key national characteristics such as sex, income, race and education, based on contemporary population counts and estimates published by the U.S. Census Bureau.

(Click on the note number to return to the text.)

## References

**American Psychiatric Association. (1994).**
*Diagnostic and Statistical Manual of Mental Disorders* (4th edition). Washington, DC: Author.

**American Psychiatric Association. (1987).**
*Diagnostic and Statistical Manual of Mental Disorders* (3rd edition, revised). Washington, DC: Author.

**American Psychiatric Association. (1980).**
*Diagnostic and Statistical Manual of Mental Disorders* (3rd edition). Washington, DC: Author.

**Azmier, J.J. (2000).**

*Canadian Gambling Behaviour and Attitudes: Summary Report*. Calgary, Alberta: Canada West Foundation.

**Gerstein, D.R., Volberg, R.A., Toce, M.T., Harwood, H., Johnson, R.A., Buie, T., Christiansen, E. et al. (1999).**
*Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission.* Chicago, IL: NORC, at the University of Chicago.

**Lesieur, H.R. (1977).**
*The Chase: Career of the Compulsive Gambler.* Garden City, NY: Anchor/Doubleday.

**Lesieur, H.R. & S.B. Blume. (1987).**
The South Oaks Gambling Screen (SOGS): A New Instrument for the Identification of Pathological Gamblers. *American Journal of Psychiatry 144*, 1184–1188.

**National Research Council, Committee on the Social and Economic Impact of Pathological Gambling. (1999).**
*Pathological Gambling: A Critical Review.* Washington, DC: National Academy Press.

**Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (1997).**
*Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A Meta-Analysis.* President and Fellows of Harvard College, Boston.

**Toce-Gerstein, M., Gerstein, D.R. & Volberg, R.A. (2003).**
A hierarchy of gambling disorders in the general population. *Addiction, 98*, 1661–1672.

**Volberg, R.A. (2000).**
*Gambling and Problem Gambling in North Dakota.* Northampton, MA: Gemini Research.

**Volberg, R.A. (1997a).**
*Gambling and Problem Gambling in Colorado.* Report to the Colorado Department of Revenue.

**Volberg, R.A. (1997b).**
*Gambling and Problem Gambling in Oregon.* Report to the Oregon Gambling Addiction Treatment Foundation.

**Acknowledgements:** The authors wish to acknowledge Dr. Rachel Volberg, as principal investigator of grant no. AA12982 from the National Institute on Alcohol Abuse and Alcoholism, which partially supported the analysis presented here, as well as for her vital contributions to the GIBS study design, implementation and analysis; and Dr. Jeff Connor-Linton, professor at Georgetown University, for providing the tools and inspiration necessary to complete the analysis presented here.

A draft of this paper was presented at the 17th National Conference on Problem Gambling, Louisville, KY, June 19, 2003.

*This article was peer-reviewed.*
*Submitted: August 12, 2003*
*All Web sites cited were active at the time of submission.*
*Accepted: November 14, 2003*

**For correspondence:**
Marianna Toce-Gerstein, MS
National Opinion Research Center at the University of Chicago
1350 Connecticut Avenue, NW, Suite 500
Washington, DC 20036 USA
E-mail: mtgerstein at norc.uchicago.edu

*Marianna Toce-Gerstein and Dean R. Gerstein are in the department of Substance Abuse, Mental Health and Criminal Justice Studies of the National Opinion Research Center (NORC) at the University of Chicago, and have been working in gambling studies for 5 years. Ms. Toce-Gerstein is a principal research analyst whose main areas of expertise include qualitative and quantitative analysis, questionnaire design, and discourse analysis. Recent gambling work involved an NIAAA grant on pathological gambling among women; prior to this, she was an analyst for NORC's Gambling Impact and Behavior Study (GIBS). Ms. Gerstein has been working in mental health research for the past 15 years, since obtaining a bachelor's degree in cultural anthropology from Mount Holyoke College. She has a master's degree in sociolinguistics from Georgetown University, and continues to work on a doctoral degree in this area.*

*Dr. Gerstein is senior vice president at NORC. He was co-principal investigator, with Rachel A. Volberg, of an NIAAA grant on gambling among women and is project director for the Arrestee Drug Abuse Monitoring program of the National Institute of Justice. In recent years, he has been the principal investigator of the GIBS; National Archive and Analytic Center for Alcohol, Drug, and Mental Health Data (under contract to the U.S. Substance Abuse and Mental Health Services Administration [SAMHSA]); Reports on Drug Use from the National Household Survey on Drug Abuse (SAMHSA); and NIH grants on vulnerability to drug abuse of high-risk youth, HIV infection among injection drug users, and process and outcomes of drug treatment services. During the 1990s, he directed three of the largest substance abuse treatment evaluations ever performed. Dr. Gerstein holds a B.A. from Reed College and a Ph.D. in sociology from Harvard University.*

*The GIBS was carried out by NORC, Gemini Research, The Lewin Group and Christiansen/Cummings Associates. This study was supported by the National Gambling Impact Study Commission, which was created by an Act of Congress in 1997. Additional support was provided by the U.S. Treasury Department, National Institute on Drug Abuse and National Institute of Mental Health. We benefited greatly from the work of a technical advisory committee comprised of Drs. Henry Lesieur at the University of Rhode*

*Island, Peter Reuter at the University of Maryland and William Thompson at the University of Nevada, Las Vegas.*

*The GIBS dataset can be accessed at http://www.icpsr.umich.edu:8080/ICPSR-STUDY/02778.xml. The comprehensive report, including findings, instruments and methodology, may be found at http://cloud9.norc.uchicago.edu/dlib/ngis.htm.*

**issue 10 — february 2004**

contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

**Research review**

*[This article prints out to about 12 pages.]*

# Gambling and the human condition: Transcending the deviant mystique

*By Scott Grills*
*Brandon University*
*Brandon, Manitoba*
*E-mail: grillss@brandonu.ca*

## Abstract

Henry Lesieur's (1977) *The Chase* belongs to a rather elite group of ethnographic texts. It is a volume that transcends its substantive area to elucidate generic aspects of the human condition. In this essay I encourage a reframing and re-reading of the text in light of generic social process theory. Lesieur's work places gambling in the context of community life and, by so doing, resists what Prus and Grills (2003) have characterized as the deviant mystique.

## Introduction

Permeating the deviant mystique requires viewing deviance as a relativistic but inevitable feature of community life. No social act or object (e.g. perspective, joint action, solitary undertaking, image, text) is inherently deviant. Rather, deviance is best cast as a quality that is attributed by some audience. In contrast to those who develop agendas, interests and identities around the designation of this or that behaviour as immoral, students of deviance must make a clear distinction between cases at hand and the moral attributes which may be assigned to such cases by practitioners or audiences. Those who approach gambling from

the vantage point of moralists, control agents, secondary-aid professionals, voyeurs or rule enforcers, privilege the problematic qualities of gambling.

Overcoming the deviant mystique requires developing an understanding of the life-world of the professional gambler as it is lived. To do so is to view gambling apart from its status as deviant activity, as simultaneously fascinating and repulsive, disrespectable and interesting. For example, cinematic representations of the gambler such as the pool hustler, the card shark, the riverboat gambler and the con artist, trade heavily on the tension between the maverick and the fool (Klapp, 1962). While such fictionalized accounts may shed some light on the human condition, they also contribute directly to the mystification of gambling activities, and clearly demarcate the gambler's life as a source of entertainment, interest and intrigue.

Lesieur's ethnography transcends this deviant mystique while also resisting those who would allow the ascribed moral status of gambling to define the activity. The result is a text whose importance extends deviance studies and remains of interest beyond its substantive area. In this essay I enumerate what I take to be the most important of these contributions and argue for the generic applicability of Lesieur's position to contemporary gambling studies and to deviance research more generally.

## Getting Close

Lesieur's work is a legacy of the Blumerian tradition. *The Chase* takes Blumer's (1969) call to pursue an intimate familiarity with the social world seriously. In concluding his volume and encouraging others to take up the research that his work foreshadows, Lesieur writes:

> Ask about women, professional thieves, and gambling in prison if you will and do not leave it to neglect as in the past or to the psychiatrists, about whom the gamblers themselves say, "He never had much experience with gamblers obviously … from the gems he keeps pumping out." I hope no one will ever say that about me (Lesieur, 1977, p. 239).

I cannot overemphasize the importance of this deceptively simple position. As Rosaldo (1989) has argued in his work *Culture and Truth,* every position involves a mixture of insight and blindness. To the extent that we locate ourselves as theorists and students of the human condition, we can, to some degree, influence our insight by privileging various forms of knowing and being known.

If we seek to know the lived experience of those whose lives are touched by gambling (such as practitioners, family members, confederates, or secondary-aid professionals), there is no substitute for engaging the world of the other. This requires getting one's hands dirty — going where the

action is, gaining entry, developing relationships, maintaining a presence in the field, and overcoming resistances to field research (Shaffir & Stebbins, 1991). Field research is time-consuming and disagreeable (Wax, 1971). Field research, as problem-solving activity, involves making pragmatic adjustments to the specifics of the field setting (Grills, 1998). The payoff for all this grief is a rich tapestry that weaves multiple voices into a singular text while preserving the integrity of the various speakers that make the whole. To know gambling as a lived experience one must know gamblers — their passions, principles, hustles, selves, and relationships.

Regrettably, much of what passes for research on deviant behaviour has little to do with the activities, perspectives, life-worlds, or relationships that accompany deviant involvements. Rather, social scientists have distanced themselves from an authentic interest in the other. In his wonderfully presented and researched volume *Inventing Criminology,* Piers Beirne (1993) argues convincingly that, with the exception of the period of research to which *The Chase* belongs, modern criminology has been dominated by positivistic thought. By positivism, I am referring to the broad range of theoretical traditions that understand human behaviour to be the product of "forces, factors, or structures (internal or external) that act on people to generate particular outcomes" (Prus, 1996, p. 4).

While not wishing to venture down an unhelpful tangent, it is useful to note that much of modern positivistic criminology owes a large debt to the analysis of social organization offered by Adolphe Quetelet (1796–1874) whose *Sur l'homme* (1835) established a clearly articulated argument against the metaphysical notion of the "born deviant." While Quetelet was a pioneering thinker and original voice in the mid-1800s, his contribution to modern criminology and sociology has been, regrettably, lost to time and a preference for distillations of intellectual history. His contention that the maturity of a science rests upon its statistical/mathematical sophistication, his interests in aggregate data, social regularities, rate-based analysis, causal reasoning, social mechanics, and his concept of *homme moyen* (the average person/man) as an instrument through which societal-level mechanics pass, placed Quetelet squarely at the forefront of the new positivism.

While it is most certainly the case that our positivist colleagues view human actors as more determined than determining, few are so committed to their position as to reject the juristic traditions which allow for some version of free will, the possibility of crimes of intention, and the notion that actors select from lines of action. As Beirne (1993) summarizes:

> In the soul of Quetelet's criminal, as in that of Victor Hugo's ex-convict Jean Valjean, in *Les Miserables,* there dwelled a primitive spark, a divine element, incorruptible in this world and immortal in the next, which could be kindled, lit up, made radiant by good, and which evil could never entirely extinguish

(Beirne, 1993, p. 230).

Such attempts to preserve the human individual from the tyranny of positivism's own renderings of causality simply serve to embrace a metaphysical position that is unsatisfying and, in the last instance, inconsistent with understanding deviance as human endeavour.

This brief discussion of 19th century positivism is included here for two rather central purposes. First, the dominant model within current gambling research posits that gambling is caused by external factors, which render the life-world of the practitioner irrelevant for the understanding of gambling practices. Second, positivism's prioritization of the social scientist as moral entrepreneur permeates those traditions that define gambling in negative or risk-based terms.

This is not to suggest that gambling activities cannot be accompanied by unwelcome outcomes for practitioners and others who are directly and indirectly implicated in their activities. The financial implications of gambling, the illegal dimensions of gambling activities, the informal and formal sanctions that may accompany gambling, and the relational and interactional results of the gambling life may hold significant consequences that limit life chances. However, the recognition that gambling may be accompanied by real harms does not logically move one to models based upon pathologies. While positivists have applied social pathologies to gambling behaviour, others have developed models based upon individual pathologies. Notable here is the extension of the disease model of addiction to gambling behaviour captured within the Gambler's Anonymous tradition (e.g. Cattano, 1996).

I began this section by arguing for attentiveness to the position of the researcher. Lesieur's interest in "getting close" reflects the analytical need for closeness. There is no substitute for intimacy when one is genuinely interested in the world of gamblers — their commitments, activities, relationships, undertakings, and involvements. When one attributes to practitioners the possibility of authentic action, then a genuine analytic interest in their life as it is lived follows. When, however, the practitioner is framed as an instrument of some pathogen, be it structural, biological, or psychological, the position of the analyst is inextricably altered.

I do not believe I overstate the case when I suggest that a consequence of positivism's dominance over the study of deviance and criminology is that we know comparatively little about deviance in a community context. Over time the words have changed — progressive, positive, reform, participatory action — but wherever the researcher is more interested in enacting their version of the good life than knowing the world of the other, the practitioner of deviance becomes a target of moral entrepreneurial interest. This relationship may further the researcher's agenda as an agent of control, but it rarely sheds light on the human condition.

## *The Chase* — Sticking with loss beyond reason

An intimate familiarity with the world of practitioners of deviance allows for a deep understanding of the perspectives that members bring to their activities. Of particular interest are understandings of social action that serve to make activities reasonable and reportable for all practical purposes (Garfinkel, 1967). The acquisition of perspectives that support deviant involvements can be central to facilitating ongoing involvements in specific activities. At times, the definition of the situation which participants bring to their activities rather centrally defines the activity and, when integrated into a complex understanding of deviance as social action, alters the way in which we understand the life-world of practitioners. I write here of sensitizing concepts that define the lived experience of practitioners. While a complete inventory of such concepts is well beyond the scope and interest of this essay, I offer two modest illustrations.

Sykes and Matza's (1957) concept of neutralization alters the way in which juvenile delinquency is framed. By alerting researchers to the reality that juvenile offenders often support the very community expectations they violate, Sykes and Matza turned the notion of rule violation on its head. They asked the important question, “how do those engaging in deviant behaviour come to suspend rule sets that they would otherwise support?” Their answer, encapsulated in the generic notion of neutralization, allows for a reframing of the process by which those involved with deviant activities come to acquire perspectives that facilitate involvement without necessarily setting aside prior understandings of "the good."

People working in the field are familiar with neutralization talk — "They had it coming," "I was just looking out for my friends," "I didn't mean to do it," "A big store like that has insurance." What is true of young offenders is true of deviance in a variety of settings, including more formal court proceedings. Partial and full defense of crimes hinges on neutralization strategies. Self-defense, duress, drunkenness, and factual mistakes are all neutralization techniques that are recognized by the courts as defenses to crime. Any resulting deviance designation may have more to do with audience acceptance or rejection of the defense for rule-breaking behaviour than with general support for certain expectations of behaviour.

Katz' volume (1988) *Seductions to Crime* includes another fine illustration of the importance of developed, perspectivally based deviance research. His concept of the "hard man" speaks directly to self-other identities. Katz argues that this concept of the assailant as an aggressor who is in control and whose will dominates the anticipated outcome of an interaction is an important reference point for understanding the willingness of "stick-up men" to "stick with [a] stick-up beyond reason." Katz' argument draws out the consideration that overly rationalized constructs of the offender fail to consider the importance of core identity constructs in understanding violent interaction sequences. When an interaction begins with the assertion that "This is a robbery, let's not make it a murder," the

commitment to violence may supersede other concerns or interests — such a commitment may be irrespective of personal costs or considerations that others outside of the interaction sequence might define as relevant or reasonable. Lesieur's concept of the "chase" contributes to framing gambling activities from the perspective of participants, while at the same time providing a context within which practitioners may construct gambling activities as reasonable practices.

From an external, rationalist perspective, gambling activities may be defined as self-defeating, immoral, or built upon flawed understandings of randomness, chance and probability. Even where gamblers are not the target of a hustle which serves to reduce or eliminates the possibly of "coming out ahead" (e.g. Prus & Sharper, 1991), formalized gambling settings always maintain a statistical advantage which ensures the protection of the interests of "the house." Formalized gambling settings are designed and organized to ensure that, over time and on average, gamblers take a fall.

Lesieur makes an important distinction between gambling as entertainment and gambling with the expectation to win. In the first case, the participant may very well anticipate "taking a hit" as entertainment is expected to cost money. In the latter instance, the instrumentality associated with gambling is financial advantage. When this does not occur and the gambler gambles to get even, the chase begins. Those who attend to long-term gains and losses and become locked in to the longer term chase are cast as compulsive gamblers.

Lesieur's presentation of gambling allows for the same activities to be defined in multiple ways. While slots may be defined in entertainment or more financially instrumental terms, it is the commitment to the chase — to get-even strategies, to closing the gap on debt — which is the defining perspectival framework of the compulsive gambler. Here, compulsion is cast relative to the definition of the situation: the compulsive gambler violates the major philosophical canons of the non-compulsive gambler; he gambles more than he can afford to lose, and he does not forget losses once they happen. Instead of saying, "It's gone, it's gone," the compulsive gambler says, "I'll get them tomorrow" (Lesieur, 1977, p. 11).

This framing (or reframing) of gambling activities relative to the chase illustrates the importance of attending to practitioners' understandings of their activities, their intentionalities, and their work developing accounts of gambling activities. Importantly, Lesieur's work resists the notion (one which is all too common in deviance research) that deviance lies, somehow, within the act or object of the researcher's interest: an image *is* pornographic; an idea *is* offensive; an activity *is* indicative of pathology. This position denies the work that goes into making the social world meaningful. Lesieur's is a richer understanding for it requires that we are open to the notion that gambling activity may simultaneously be understood as entertainment, a short chase to pay a bill or two, an integrated part of a larger and more developed gambling strategy,

intriguing, worrisome, problematic or fascinating. These multiple orientations to the very same act may be held by multiple participants in the same setting and by individuals over time.

My point is not so much that perspectives matter (for they most certainly do), but that deviance, as a feature of human group life, is most profitably understood in a community context. This requires an interest in the multiple meanings that come to be associated with an activity and the pragmatic implications of attention or inattention to such definitions for practitioners and others. Simply put, the idea of the "chase" and a commitment to it places the practitioner in a very different relationship to their activities than is to be found in a variety of other understandings of gambling activities. Researchers who prefer to substitute their own understanding of the social world for that of participants will, necessarily, construct concepts considerably less helpful than those grounded in everyday life which make meaningful the world of the other.

## Careers and community action

I confess to having a weakness for beautiful, little ideas that change the way we see our worlds. Nietzsche wrote, "It is my ambition to say in ten sentences; what others say in a whole book." Howard Becker (1963) crafted a little book that contained several of Nietzsche's "10-sentence books." His social insight, combined with the timeliness of the substantive area, established *The Outsiders* as a volume of lasting importance. In this text, Becker offers the deceptively simple assertion that sequential models of deviant behaviour are richer than simultaneous ones. Rather than understanding deviance as an end, it is more helpful to understand deviance in involvement terms. Involvements will vary over time and may be best understood in duration or career terms. For example, the interests and intentionalities that take one person to the racetrack for the first time are often distinct from those of another person who organizes his or her activities more centrally around betting on horse races.

Framing deviant activity in these terms allows for the development of a generic model of involvements or career contingencies. It lies well beyond the scope of this paper to undertake a detailed review of the career contingencies literature (Prus & Grills, 2003, pp. 97–180) or to draw out the multiple ways in which *The Chase* may be collected around such models. Instead, I offer this much more modest summary.

Lesieur's work recognizes the unevenness and uncertainties of initial involvements. The action accompanying card, sport and horse gambling is such that some participants come to construct preparatory activities, identities, relationships and strategies around particular enterprises. Others are more apt to seek out action in multiple settings. The extent to which participants will come to develop commitments to gambling is quite variable. Participation in gambling may not move much beyond initial interests, curiosities, fascinations or entertainment-oriented

considerations.

The move from initial involvement to continuing involvements is uncertain at best. The extent to which practitioners acquire the perspectives of the life, develop and sustain identities associated with deviant activities, develop instrumental competencies related to deviant activities, make commitments to deviant activities and outcomes, successfully manage relationships with others, and experience emotional/personal attachments, directly influences the extent to which ongoing participation will be sustained. Failure to manage the multiple contingencies that accompany continuing involvements may disqualify or otherwise impede continuing participation. For example, the definition of gambling activities in more favourable terms (e.g. pleasurable, potentially rewarding, entertaining) is a rather essential feature of continuing involvements, as is overcoming or otherwise resisting more negative representations of gambling (e.g. immoral, a fool's game, illegal). Continuing involvements in gambling activities requires overcoming a variety of problematics that hold the potential to restrict or eliminate practitioners' ongoing involvement (e.g. neutralization strategies).

Lesieur's interest in careers in gambling extends to disinvolvement and focuses on enforced and voluntary abstinence (Lesieur, 1977, pp. 200–216). Lesieur's work stands as one of the first ethnographic studies to explicitly address disinvolvement in a community context. This is particularly important as "leaving" is as fully social an activity as being involved. Lesieur's position is also one that fully locates participation and disinvolvement in the realm of human activity, reflecting human group life as problem-solving activity marked by uncertainties, unwelcome exclusions, and unanticipated re-involvements. This model resists more simplistic notions of "causation" which do not fully attend to the dynamics accompanying career contingencies.

## Solitary deviance and other attentive action

Sociologists have been significantly remiss in the extent to which they have attended to solitary action, generally, and solitary deviance, more specifically. I share Cooley's (1964) position that the distinction between individual and society is an abstraction that is unknown to experience. People's capacities for reflective action, language, the meaningful engagement of the social world, and taking the standpoint of the other are contingent and dependent upon relationships with others and facilitate solitary action that is other-attentive. The fundamental unit of sociological analysis remains the joint act (Couch, 1989), yet it is from such joint action that the possibility of socially meaning-filled solitary action is made real.

Solitary action is best framed in social terms. Prus and Grills (2003) distinguish between solitary operators and subcultural participants. While solitary operators may rely rather extensively on worlds that are enabled by subcultural participants, they nevertheless pursue deviance in more

isolated and solitary ways. Solitary participation in gambling activities may allow for participation in gambling in the absence of relational dynamics that are inherent in a variety of gambling settings.

Solitary participation may prove quite useful for managing self/other identities, restricting the extent to which the self is associated with gambling, maintaining relationships, and otherwise isolating aspects of gambling involvements from other commitments and entanglements. Cyber-gambling, like cyber-sex, may allow for secret and solitary undertakings that would otherwise be impossible to pursue. More solitary pursuits may also facilitate the vicarious experience of gambling, as practitioners experience gambling "from afar" (e.g. virtual day trading). While practitioners may fully recognize the partial and in some ways limiting features of solitary vicarious experience, they also may appreciate the extent to which such activities serve to limit personal risk or harm while serving as at least a passable substitute for the "real thing." While sociologists, rather understandably, have attended more fully to subculturally based pursuits, we would be significantly remiss should we fail to attend to deviance as it is undertaken in more solitary ways.

## Conclusion

This brief paper has attempted to identify a few of the ways in which Lesieur's *The Chase* has contributed to a generic understanding of deviance in a community context. In so doing, I have taken some liberties with the text itself and have made no effort to integrate my reading of the volume with Lesieur's subsequent scholarship. I take this to be something of the privilege of the reader. If this modest contribution has offered anything, I hope that it is to make relevant a 25-year-old ethnography to contemporary readers who may be coming to the text for the first time. Importantly, this volume:

- Locates the deviant status of gambling activities relative to the moral judgments of some audience
- Attends to gambling in a community, activity-based frame
- Models the need to get close to life as it is lived
- Attends to the world as it is engaged by the people whose lives are considered
- Extends the conceptual frame by generating generically viable concepts.

*The Chase* joins a very small list of scholarly works in deviant behaviour – the list of works that take deviance to be a feature of the human condition; works which do not relegate deviance to the dustbin of the abnormal, the flawed, the pathological, or the otherwise defiled. The concept of the “chase” frames gambling behaviour relative to the meaning-rich context of

participants' theatres of operation — theatres that are best understood in relational, action-based, morally-charged terms. By so doing, Lesieur resists the deviant mystique associated with the study of gambling and provides a model for research that is as relevant for contemporary scholars as it was a generation ago.

## References

**Becker, H. (1963).**
*Outsiders: Studies in the Sociology of Deviance.* New York: Free Press.

**Beirne, P. (1993).**
*Inventing Criminology: Essays on the Rise of "Homo Criminalis."* Albany, NY: State University of New York Press.

**Blumer, H. (1969).**
*Symbolic Interaction: Perspective and Method.* Englewood Cliffs, NJ: Prentice Hall.

**Cattano, J.A. (1996).**
The influence of unconscious fantasy process in addictions and relapse. *Clinical Social Work, 24,* 429–442.

**Cooley, C.H. (1964).**
*Human Nature and Social Order.* New York: Schocken.

**Couch, C. (1989).**
*Social Processes and Social Relationships.* Dix Hills, NJ: General Hall.

**Garfinkel, H. (1967).**
*Studies in Ethnomethodology.* Englewood Cliffs, NJ: Prentice Hall.

**Grills, S. (Ed.). (1998).**
*Doing Ethnographic Research: Fieldwork Settings.* Thousand Oaks, CA: Sage.

**Katz, J. (1988).**
*Seductions to Crime: Moral and Sensual Attractions in Doing Evil.* New York: Basic Books.

**Klapp, O. (1962).**
*Heroes, Villains, and Fools: The Changing American Character.* Englewood Cliffs, NJ: Prentice Hall.

**Lesieur, H.R. (1977).**
*The Chase: Career of the Compulsive Gambler.* Garden City, NY: Anchor.

**Prus, R. (1996).**
*Symbolic Interaction and Ethnographic Research: Intersubjectivity*

*and the Study of Human Lived Experience.* Albany, NY: State University of New York Press.

**Prus, R. & Grills, S. (2003).**
*The Deviant Mystique: Involvements, Realities, and Regulation.* Westport, CT: Praeger.

**Prus, R. & Sharper, C.R.D. (1991).**
*Road Hustler: Grifting, Magic and the Thief Subculture.* New York: Kaufman and Greenberg.

**Quetelet, A. (1835).**
*Sur l'Homme et le Développement de ses Facultés, ou Essai de Physique Sociale.* Paris: Bachelier.

**Rosaldo, R. (1989).**
*Culture and Truth: The Remaking of Social Analysis.* Boston: Beacon.

**Shaffir, W. & Stebbins, R. (Eds.). (1991).**
*Experiencing Fieldwork: An Inside View of Qualitative Research.* Newbury Park, CA: Sage.

**Sykes, G. & Matza, D. (1957).**
Techniques of neutralization. *American Sociological Review, 24,* 208–215.

**Wax, R. (1971).**
*Doing Fieldwork: Warnings and Advice.* Chicago: University of Chicago Press.

*This article was peer-reviewed.*
*Submitted: August 9, 2003*
*Accepted: December 23, 2003*

**For correspondence:**
*Scott Grills, PhD*
*Dean of Arts*
*Brandon University*
*Brandon, Manitoba, Canada R7A 6A9*

*E-mail: grillss@brandonu.ca*

*Scott Grills is a member of the sociology department at Brandon University. He is the author (with Robert Prus) of* The Deviant Mystique *(2003) and the editor of* Doing Ethnographic Research *(Sage, 1998). He currently serves as the dean of arts at Brandon University.*


contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

**Research review**

*[This article prints out to about 22 pages.]*

# Adolescents with gambling problems: A synopsis of our current knowledge

*By Jeffrey L. Derevensky*
*International Centre for Youth Gambling Problems and High-Risk Behaviors*
*McGill University*
*Montreal, Quebec, Canada*
*Email: jeffrey.derevensky@mcgill.ca*

*Rina Gupta*
*International Centre for Youth Gambling Problems and High-Risk Behaviors*
*McGill University*
*Montreal, Quebec, Canada*

## Abstract

It's been 25 years since Henry Lesieur's seminal research on understanding compulsive gambling was published. While still in its infancy, the field of gambling research has evolved and greatly added to a better understanding of this complex behavior, its measurement, its social and familial costs, ways of minimizing and preventing gambling problems, and methods of treating individuals with gambling problems. For most adolescents and adults gambling remains a form of entertainment without serious negative consequences. Yet, adolescent pathological gamblers, like their adult counterparts and independent of the negative

consequences resulting from their excessive gambling, continue to chase their losses, exhibit a preoccupation with gambling, and have an impaired ability to stop gambling in spite of repeated attempts and their desire to do so. Our current empirical knowledge of youth gambling problems is reviewed and recommendations for future research are provided.

In 1977 Henry Lesieur published his groundbreaking sociological study of the compulsive (pathological) gambler, *The Chase: Career of the Compulsive Gambler.* This work was based on Henry Lesieur's astute observations and clinical interviews with pathological gamblers in an attempt to better understand the career and behavioral patterns of individuals with severe gambling problems. Much has changed during the past 25 years since this seminal work was published. While the body of scientific knowledge has substantially increased so too has the widespread availability of gambling venues and types of games. We are still struggling with understanding why certain individuals continue to wage money in an excessive manner in spite of repeated losses. Henry Lesieur's early attempt at helping us understand the compulsive gambler marked the beginning of a long and illustrious research and clinical career. *The Chase,* along with his subsequent work, has helped facilitate our understanding of this complex disorder. The initial tenets outlined in *The Chase* provided a framework for much scientific research. Like most good research, *The Chase* provided insights into the pathological gambler and raised new and important research and clinical questions.

In the 1984 edition of *The Chase,* only seven years after its initial publication, Lesieur added an afterword. He aptly noted that there were six distinctive developments which were occurring in the 1970's and 1980's that he believed had an impact upon the perception of the traditional image of the pathological gambler: (1) legalized gambling had begun to increase at an unprecedented level. At that time, he noted that increased gambling venues likely results in an increased prevalence rate of pathological gamblers. He also suggested that the gambling industry and concomitant problems associated with pathological gambling would continue to grow and attract widespread media coverage, (2) the first in-patient treatment center for pathological gamblers was established by the Veterans Administration in Brecksville Ohio, (3) the National Council on Compulsive Gambling was established as a vehicle to help educate the general public on issues of compulsive gambling, (4) the first Commission on the Review of the National Policy Toward Gambling highlighted the necessity to more closely examine this disorder, (5) the American Psychiatric Association in its *Diagnostic and Statistical Manual of Mental Disorders* (1980) recognized pathological gambling as a Disorder of Impulse Control, and (6) treatment programs were begun in Maryland, Connecticut, and New York, with the first toll-free helpline (800 GAMBLER) being established in New Jersey. These developments marked a significant change in the recognition of pathological gambling as a treatable disorder, a beginning toward educating the public about the problem, and more widespread access toward receiving help for those in need.

In this same edition of *The Chase,* Lesieur proposed an agenda for research on pathological gambling. He articulated four major types of research which were needed: (1) ethnographic studies of subpopulations of gamblers, (2) solid epidemiological research on the incidence and prevalence of pathological gambling, (3) research examining the diagnostic criteria for pathological gambling, and (4) systematic evaluation of prevailing treatment programs in an attempt to establish "Best Practices". While scientific gains have been made in some of these areas much more research is necessary. Following Lesieur's call for an examination of subpopulations of gamblers, one area of concern was a growing group of underage youth who were not only gambling but also experiencing many similar negative behaviors associated with pathological gambling as their adult counterparts.

The chase to recoup losses, in which the individual becomes trapped in a self enclosed system, coupled with a desire to reach heightened levels of excitement found in so many adult pathological gamblers was also present in a number of adolescents and young adults experiencing gambling problems. As their gambling involvement increased, they too became trapped in this downward spiral. The adolescent pathological gambler, like his adult counterpart, get more engrossed in the action and intensity of the chase becoming so entranced that for the time they are gambling all their problems disappear (Gupta & Derevensky, 1998a, 2000). Their primary intention becomes recouping losses, and they continue playing despite their reported desire to stop and the negative consequences associated with their excessive pathological gambling behavior.

In April 1995, the North American Think Tank on Youth Gambling Issues was held at Harvard Medical School. Forty-two individuals from the United States and Canada, from public and private institutions, gathered to seek solutions to the growing social-health problem associated with adolescent gambling problems (George, 2003). Lesieur (2003) at that meeting talked of adolescent gambling research as being the "next wave of research." Early research reports provided clear evidence that high school students gambled in casinos in Atlantic City despite legal prohibitions (Arcuri, Lester & Smith, 1985). Further, Lesieur and Klein (1987) reported that 86% of high school students in New Jersey reported gambling in the past year, and 91% had participated in some form of gambling during their lifetime. These early studies eventually led to a plethora of prevalence studies, meta analyses and reviews, which concluded that gambling amongst youth was commonplace, and the prevalence rates for pathological gambling amongst adolescents was higher than that reported for adults (e.g., Hardoon & Derevensky, 2002; Jacobs, 2000; National Research Council, 1999; Shaffer & Hall, 1996). The National Research Council (1999) reviewed the existing scientific literature and concluded that adolescents were indeed a high-risk and vulnerable population, likely to be at risk for developing gambling problems and may be especially vulnerable to their effects. The National Research Council, while urging caution as data sets were not always comparable, concluded that the proportion of pathological gambling among adolescents in the United

States could be more than three times that of adults (5.0% vs. 1.5%).

While the actual prevalence rates for adolescent pathological gambling remains somewhat contentious (see Derevensky, Gupta & Winters, 2003, for a comprehensive discussion), and there is concern about the screening instruments used for the identification of adolescents with gambling problems (see Lesieur, 2003, for some of the methodological weaknesses of the instrumentation), there is little doubt that a vast majority of adolescents report wagering money during the past year, and that an identifiable number actually experience many gambling related negative behaviors. In a recent study, Derevensky and Gupta (2000) reported that 91% of pathological adolescent and young adult gamblers have a preoccupation with gambling; 85% indicate chasing their losses; 70% lie to family members, peers and friends about their gambling behavior; 61% gamble as a way of escaping problems; 61% use their lunch money and/or allowance for gambling; 61% become tense and restless when trying to cut down on their gambling; 57% report spending increasing amounts of money gambling; 52% gamble as a way of escaping problems; 27% report skipping school (more than five times) to gamble in the past year; 24% have taken money from a family member to gamble without their knowledge; 24% have sought help for serious financial concerns resulting from their gambling; 21% have developed familial problems resulting from their gambling behavior; and 12% report having stolen money from outside the family to gamble.

Problem and pathological gambling among adolescents has been shown to result in increased delinquency and crime, the disruption of familial relationships and poor academic performance (Gupta & Derevensky, 1998a; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Wynne, Smith & Jacobs, 1996). As well, youth pathological gamblers are reported to have high rates of suicide ideation and suicide attempts (Nower, Gupta & Derevensky, 2003) and a number of mental health and behavioral problems (Hardoon, Gupta & Derevensky, 2002).

There exists a growing body of research designed to help identify the risk and protective factors associated with gambling problems among youth, to examine the antecedents of the problem, and to identify effective strategies for the prevention and treatment of youth with serious gambling problems. Current research efforts have been focused upon basic issues of assessment of gambling severity; the identification of physiological, psychological and socio-emotional mechanisms underlying excessive gambling behavior among youth; understanding why some individuals continue to gamble in spite of repeated losses; and how to best educate, prevent, and treat these problems. There remains little doubt that gambling amongst youth remains an important area in of further basic and applied research, additional funding, and responsible social policy development.

## Risk factors and correlates

What do we know about youth gambling? These findings have been reported elsewhere and our current knowledge in this area continues to grow. There is substantial empirical support and a growing body of research indicating the following:

- Gambling is more popular amongst males than females and more males than females exhibit pathological gambling behaviors (Fisher, 1990; Gupta & Derevensky, 1998a; Ladouceur, Dubé & Bujold, 1994; NORC, 1999; NRC, 1999; Stinchfield, 2000; Stinchfield, Cassuto, Winters & Latimer, 1997; Volberg, 1994, 1996, 1998; Wynne et al., 1996).
- Prevalence rates of problem gambling among adolescents are higher than those reported by adults (Gupta & Derevensky, 1998a; Jacobs, 2000; NRC, 1999; Shaffer & Hall, 1996). While there is some controversy in the literature regarding this conclusion, there is ample empirical research supporting this finding, given our current definition of pathological gambling and the screening instruments used for assessment (Derevensky et al., 2003).
- Among adolescents there is a rapid movement from social gambler to problem gambler (Derevensky & Gupta, 1996, 1999; Gupta & Derevensky, 1998a).
- Adolescent problem gamblers report initiating gambling at an early age (approximately 10 years of age) as compared with peers who report gambling but have few gambling related problems (Derevensky & Gupta, 2001; Gupta & Derevensky, 1997, 1998b; Wynne et al., 1996).
- Probable pathological gamblers are greater risk-takers in general and on gambling tasks in particular (Arnett, 1994; Breen & Zuckerman, 1996; Derevensky & Gupta, 1996; Powell, Hardoon, Derevensky & Gupta, 1999; Zuckerman, 1979; Zuckerman, Eysenck & Eysenck, 1978).
- Research data and clinical testimony suggest that adolescent pathological gamblers have lower self-esteem compared to other adolescents (Gupta & Derevensky, 1998b, 2001, in press).
- Adolescent problem gamblers report greater depressive symptomatology compared to both non-gambling adolescents and those described as social gamblers (Gupta & Derevensky, 1998a, 1998b, 2001; Kaufman et al., 2002; Marget et al., 1999).
- Adolescent problem gamblers score higher on dissociative scales (Gupta & Derevensky, 1998b, 2001; Jacobs, Marston & Singer, 1985).
- Adolescents between the ages of 14 and 17 with serious gambling problems remain at a heightened risk for suicide ideation and suicide attempts (Gupta & Derevensky, 1998a, 2001).

- Adolescents with gambling problems have poor general coping skills (Marget et al., 1999; Gupta & Derevensky, 2001; Nower, Gupta & Derevensky, 2000). As well, they report more daily hassles and major traumatic life events (Gupta & Derevensky, 2001; Kaufman et al., 2002).
- A high proportion of youth with gambling problems report having a learning disability as well as poor family connectedness and low perceived social support (Hardoon et al., 2002).
- Personality traits reveal adolescent pathological gamblers are more excitable, extroverted, anxious, tend to have difficulty conforming to societal norms, and experience difficulties with self-discipline (Gupta & Derevensky, in press; Hardoon et al., 2002). Adolescents with severe gambling problems also exhibit higher scores on measures of state and trait anxiety (Gupta & Derevensky, 1998b; Ste-Marie, Gupta,& Derevensky, 2002) and are more impulsive (Nower, Derevensky & Gupta, in press; Vitaro, Ferland, Jacques & Ladouceur, 1998 ).
- For adolescents with severe gambling problems, quality long-lasting friendships and relationships are often lost and replaced by gambling associates (Derevensky & Gupta, 1999).
- Adolescent problem gamblers remain at increased risk for the development of multiple addictions (Gupta & Derevensky, 1998a, 1998b, 2001; Kusyszyn, 1972; Lesieur & Klein, 1987; Winters & Anderson, 2000).
- Like adults (Azmier, 2000), children and adolescents often have a positive attitude toward gambling (Dickson, Derevensky & Gupta, 2002). These individuals fail to completely understand the risks or odds associated with gambling (Wood, Derevensky, Gupta & Griffiths, 2002).
- Only a small percentage of individuals scoring in the pathological gambling range on multiple screening instruments perceive themselves as having a gambling problem. This is one of the reasons for their not seeking professional help (Hardoon, Derevensky & Gupta, 2003).

## Treatment

Current treatment paradigms for adolescents and young adults have, in general, been based on a number of theoretical approaches and parallel those used for adults (e.g., psychoanalytic or psychodynamic, behavioral, cognitive and cognitive-behavioral, pharmacological, physiological, biological/genetic, addiction-based models, or self-help). The resulting treatment paradigms have incorporated a narrow focus depending upon the therapist's theoretical orientation of the etiology of a gambling problem and their background work in the field of addictions. Unfortunately, we

have yet to achieve consensus on what constitutes "Best Practices" for treating both adolescents and adults with gambling problems (Nathan, 2001). Too few treatment centers see adolescents specifically for gambling problems, and the number of tightly controlled treatment efficacy studies is extremely limited.

There is considerable empirical support suggesting that gambling involves a complex and dynamic interaction between ecological, psycho-physiological, developmental, cognitive and behavioral components. Given this complexity, Gupta and Derevensky (2000) contend that each of these components needs to be adequately addressed and incorporated into a treatment paradigm for youth experiencing significant gambling problems. Empirical support for Jacobs' General Theory of Addiction for adolescent problem gamblers (Gupta & Derevensky, 1998b) suggests that adolescent problem and pathological gamblers exhibited evidence of abnormal physiological resting states, exhibited greater emotional distress; they also reported significantly higher levels of dissociation when gambling, and had higher rates of comorbidity with other addictive behaviors.

The treatment studies reported in the literature have generally been case studies with small sample sizes (Gupta & Derevensky, 2000; Knapp & Lech, 1987; Ladouceur, Dubé et al., 1994; Murray, 1993; Wildman, 1997) and have been criticized for not being subjected to rigorous scientific standards (Blaszczynski & Silove, 1995; Nathan, 2001; National Gambling Impact Study Commission, 1999; NRC, 1999). Ladouceur and his colleagues have long argued for a cognitive-behavioral approach to treating both adults and youth with gambling problems (e.g., Bujold, Ladouceur, Sylvain & Boisvert, 1994; Ladouceur, Boisvert & Dumont, 1994; Ladouceur, Sylvain, Letarte, Giroux & Jacques, 1998; Ladouceur & Walker, 1996, 1998). Underlying the cognitive-behavioral approach is the assumption that pathological gamblers continue to gamble in spite of repeated losses as they maintain an unrealistic belief that losses will be recovered. This perspective also assumes that it is the individual's erroneous beliefs (i.e. a lack of understanding of the notion of independence of events, erroneous perceptions about the level of skill required to be successful in predicting the outcome of chance events, and their illusion of personal control and skill) that foster their persistent gambling behaviors (Ladouceur & Walker, 1998). Ladouceur, Boisvert & Dumont, 1994), using four adolescent male pathological gamblers, implemented a cognitive-behavioral therapy program and reported clinically significant improvements with respect to the adolescents' beliefs about the perception of control when gambling and a significant reduction in severity of gambling problems. Six months post-treatment, three adolescents sustained treatment gains and were abstinent. Ladouceur and his colleagues concluded that cognitive therapy shows considerable promise as a treatment intervention for adolescents with significant gambling problems.

Gupta and Derevensky (2000) described a treatment model predicated

upon their findings that youth problem gamblers generally show evidence of depressive symptomatology; somatic disorders; anxiety; attention deficits; academic, personal and familial problems; high risk-taking; poor coping skills, and as such, use gambling as a way of escaping daily and long-term problems, in addition to experiencing erroneous cognitive beliefs and distortions. They contend that one must effectively deal with the underlying psychological problems in order to get the adolescent to stop gambling and to prevent relapse.

Of great promise is Nower and Blaszczynski's (2003) pathways approach to treating youth gamblers. Based upon Blaszczynski's (1998) and Blaszczynski and Nower's (2002) Pathways Model, it is suggested that a multifaceted constellation of risk and protective factors differentially influence adolescents who otherwise display similar phenomenological features and patterns following alternative and distinct pathways toward a gambling disorder. Originally designed for adult pathological gamblers, Blaszczynski and Nower suggest that a similar model is plausible for youth. Their model proposes that at least three subgroups of adolescent problem and pathological gamblers with distinct clinical features and etiologies exist: Behaviorally-conditioned problem gamblers, Pathway 1, lack specific or general psychiatric pathology but rather succumb to the highly addictive schedules of behavioral reinforcement found in most gambling activities; Emotionally vulnerable problem gamblers, Pathway 2, exhibit a biological and emotional vulnerability to pathology; their behavior is characterized by high levels of depression and/or anxiety, low self-esteem and a history of poor social support and emotional neglect by parents or caregivers; Antisocial impulsivist problem gamblers, Pathway 3, are similar to individuals in Pathway 2, but they are more impulsive, antisocial and often have comorbid addictions. Nower and Blaszczynski (2003) contend that the Pathways Model is composed of three major but distinct pathways leading to pathological gambling, all of which share certain similar processes and symptomatic features. However, each pathway is distinguished by empirically testable differences in vulnerability factors, demographic features and etiological processes, including ease of access and social acceptability of gambling.

While all youth pathological gamblers are subject to ecological variables, operant and classical conditioning, and cognitive reasoning, Nower and Blaszczynski suggest that differences between subgroups have significant implications for both diagnosis and treatment. They suggest that Pathway 1 youth gamblers are normative in temperament but lose control when gambling as a result of the intermittent reinforcement schedules and probabilities of success, so common in most forms of gambling. In contrast, Pathway 2 gamblers are characterized by having disrupted and/or poor familial and personal histories, affective instability and disorders, and inefficient coping and problem-solving skills. These individuals are more likely to view gambling as a means of emotional escape and mood regulation. Finally, individuals in Pathway 3 exhibit quite distinct biological vulnerabilities toward impulsivity and arousal-seeking, are more likely to have an early onset of gambling and exhibit attentional

deficits and antisocial traits. While empirical research is needed to determine the relative proportion of youth in each pathway and to validate the model, identifying the appropriate pathway for youth gamblers would provide a useful clinical framework that will ultimately improve the effectiveness of our treatment interventions.

Clearly, the research on the effective treatment of adolescent pathological gamblers is limited and in its early stages. Further research into the efficacy of alternative treatment models for youth problem gamblers is necessary before recommendations for "Best Practices" can be reliably established.

## Prevention

While limited progress has been made in understanding the treatment of problem adolescent gambling or the characteristics of those seeking help (Gupta & Derevensky, 2000; Nathan, 2001), empirical knowledge concerning prevention of gambling problems and its translation into science-based prevention initiatives is also scarce (Derevensky, Gupta, Dickson & Deguire, 2002). Fortunately, prevention specialists in the gambling field can draw upon the substantial research on prevention of adolescent alcohol and substance abuse prevention.

Theoretical and empirical research that point to commonalities between problem adolescent gambling and other addictions (e.g. alcohol and drugs) suggests that successful prevention initiatives in other domains may be useful toward the prevention of youth problem gambling (Dickson et al., 2002). Current prevention efforts in the fields of alcohol and drug abuse have focused upon the concepts of risk and protective factors and their interaction (Brounstein, Zweig & Gardner, 1999). These efforts seek to prevent or limit the effects of risk factors (those variables associated with a high probability of onset, greater severity and longer duration of major mental health problems) and increase protective factors (conditions that improve an individual's resistance to risk factors and disorders). In doing so, it is believed that individuals will become more resilient.

Although few scientifically validated prevention initiatives currently exist for problem gambling (see Derevensky, Gupta, Dickson & Deguire, 2002, for a comprehensive review and list of current programs), the increasing widespread use of a harm-reduction approach in the field of alcohol and substance abuse may be useful for preventing gambling problems (Dickson, Derevensky & Gupta, in press). Based upon current theoretical and empirical evidence of common risk and protective factors across adolescent risky behaviors, it has been advocated that prevention initiatives move toward designing prevention strategies that are more inclusive and target multiple-risk behaviors (Costello, Erkanli, Federman & Angold, 1999; Galambos & Tilton-Weaver, 1998; Jessor, 1998; Loeber, Farrington, Stouthamer-Loeber & Van Kammen, 1998), including problem gambling (Dickson et al., in press).

As an overarching framework, harm reduction (also referred to as harm minimization) includes strategies, policies or programs that promote reduction and responsible gambling without requiring abstinence (Riley et al., 1999). By definition, this framework includes secondary prevention strategies, predicated upon the assumption that it is not feasible to believe that one can prevent individuals from participating in particular risky behaviors (Baer, MacLean & Marlatt, 1998), tertiary prevention strategies (DiClemete, 1999), as well as a "health movement" strategy (Heather, Wodak, Nadelmann & O'Hare, 1993).

If one accepts harm reduction as a health paradigm in lieu of, or as an interim step toward an abstinence model, a harm reduction approach supports strategies that aim to reduce harmful negative consequences incurred through involvement in risky behaviors (Dickson et al., in press). In contrast, an abstinence approach is predicated upon the belief that underage youth are legally prohibited from access, including the purchase of lottery products), and as such, should not engage in these behaviors. Yet, research clearly indicates that early gambling experiences amongst children and adolescents occur for both non-legalized forms of gambling (e.g., playing cards for money, placing informal bets on sports events, etc.), as well as all forms of legalized and regulated gambling (e.g., lottery purchases, casino games) (Gupta & Derevensky, 1998a; Jacobs, 2000). As Dickson et al. (in press) noted, this highlights both the paradox and the confusion as to which primary prevention approach to promote: abstinence or harm reduction? If one were to advocate an abstinence approach, is it realistic to expect youth to stop gambling when it has been found that large numbers of youth gamble (Gupta & Derevensky, 1998a; Jacobs, 2000; National Research Council, 1999), especially with family members (Gupta & Derevensky, 1998a), and that gambling has come to be viewed as a respectable form of entertainment (Azmier, 2000). As with adults, one could argue that it may be unrealistic to expect youth to stop gambling entirely, especially since it is exceedingly difficult to regulate access to all forms of gambling. While we remain concerned about the occurrence of serious gambling problems amongst youth, it is important to note that the vast majority of youth who gamble do so without developing any significant gambling-related problems.

The application and style of prevention approaches have shifted back and forth over the past decades, from abstinence to informed use (Dickson et al., in press). Beck (1998) describes the cycle of the "just say no" approach to the "just say know" approach that has taken place over the past years in the drug prevention movement. The " just say no" climate resulted from inaccurate information being conveyed to students in an attempt to intimidate and persuade youth to abstain from drugs, "… ultimately fostering widespread distrust and discounting of all messages — no matter how credible" (Beck, 1998, p.33). The " just say know" movement paralleled the harm reduction model, whereby prevention/ education strategies focused upon providing cognitive drug education and fostering decision-making skills with the goal of minimizing the negative consequences associated with excessive drug use. While these early

programs often resulted in significant gains in knowledge, they were nevertheless found to be ineffective in either reducing the use of illicit drugs, nor in fostering healthier attitudes toward their use (Schaps, DiBartolo, Moskowtz, Palley & Churgin, 1981).

Despite the complexities of using the risk-protective factor model (see Coie et al., 1993; Dickson et al., 2002), this model can be used as the theoretical basis of harm reduction because of its role in science-based prevention and its empirical validity in adolescent risk behavior theory (Jessor, 1998). Still further, DiClemente's (1999) theory of intentional behavioral change has been used to understand the initiation of health-related behaviors, including gambling, along with the modification of problem behaviors, such as excessive alcohol use and problem gambling (DiClemente, Story & Murray, 2000). A strength of the risk-protective factor model is that it enables prevention specialists to create, evaluate and refine harm reduction prevention programs based upon changes in risk and protective factors that have been shown to account for changes in targeted behaviors, attitudes, etc. (Coie et al., 1993), rather than relying on traditional means of measuring effectiveness; quantitatively measuring change rates of harmful consequences of risky behaviors (Dickson et al., in press).

The examination of the commonalities of risk factors for problem gambling and other addictions provides sufficient evidence to suggest that gambling can similarly be incorporated into more general addiction and adolescent risk behavior prevention programs. Current research efforts (e.g., Costello et al., 1999; Dickson et al., 2002; Galambos & Tilton-Weaver, 1998; Loeber et al., 1998) suggest the utility of a general mental health prevention program that addresses multiple adolescent risky behaviors (e.g., substance abuse, gambling, risky driving, truancy and risky sexual activity).

While high-risk behaviors share many common risk factors, risky activities differ on several important dimensions, and our examination of harm reduction prevention strategies suggests that the harm reduction approach is most appropriate for targeting those risky activities that lie on a continuum of harm (when engaged in responsibly and moderately, yield no negative consequences) and are socially acceptable (Dickson et al., in press). As a result, a general mental health prevention program would seem to be most effective if it were to incorporate elements of both abstinence and harm reduction principles for youth gambling. For the vast majority of social and non-gamblers, a harm minimization approach will likely suffice. However, Gupta and Derevensky (2000) have argued that for those individuals exhibiting a significant gambling problem an abstinence model should be applied. Further research is required to determine the positive and/or negative consequences of universal harm reduction prevention programs that target multiple risky behaviors (Derevensky et al., 2001).

Only recently have health professionals, educators and public policy-

makers voiced an acknowledgment of the need for prevention of problem gambling amongst youth. As previously noted, controversy continues about the prevalence of underage adolescents with gambling problems. These same researchers suggest that individuals 18 to 25 years of age are the highest risk group for gambling problems (Ladouceur, 2001). If this is true, the question remains as to when these individuals began gambling, given the time delay between onset of gambling and pathological gambling behaviors. In light of the scarcity of empirical knowledge about the prevention of this disorder, the similarities between adolescent problem gambling and other risk behaviors (particularly alcohol use and abuse — a prohibited substance for adolescents, yet legal for adults) can be informative in our conceptualization of the future direction of youth gambling prevention programs.

Despite our limited knowledge of the role of protective factors in adolescent gambling problems (additional empirical work needs to be done in this area), there is ample research to suggest that direct and moderator effects of protection can be used to guide the development of prevention and intervention efforts to help minimize adolescent risk behaviors. An adapted version of Jessor's (1998) adolescent risk behavior model, delineated by Dickson et al. (2002), provides a useful framework from which to begin the much needed research that will ultimately lead to the development of effective, science-based prevention initiatives for minimizing problem gambling among youth.

Today's youth will mature and become adults, having free access to multiple forms of legalized gambling. The introduction of harm-reduction prevention initiatives to help youth become less vulnerable to the risks of a gambling problem is certainly desirable. Supported by research pointing to the critical task of targeting risk and protective factors in multiple domains (Coie et al., 1993), mental health organizations across Canada and the United States have been advocating for collaborative efforts among families, schools, social services and communities (Brounstein et al., 1999; Dickson et al., in press).

There remains little doubt that adolescents constitute a particularly high-risk group for acquiring a gambling problem given their high rates of risk-taking, their perceived invulnerability, their lack of recognition that gambling can lead to serious problems, and the social acceptability and glamorization of gambling throughout the world. It is important to note that gambling issues cut across a number of other public health policy domains: social, economic, health and justice, and is only beginning to emerge as an important social policy issue. Given that it takes several years to develop a significant gambling problem (the downward spiral presented in Lesieur's (1977) work), the true social impact upon youth will likely take years to realize. Equally important is that under most governmental statutes children and adolescents are prohibited from engaging in legalized/regulated forms of gambling. Yet, we know that most youth who want to purchase lottery tickets and access other forms of gambling have little difficulty doing so (Felsher, Derevensky & Gupta,

2003, in press). A concerted effort must be made to ensure that those statutes are adhered to and that there will be steep fines and penalties for operators and vendors violating such laws. Where such laws don't exist, government legislators are strongly urged to initiate strong legislative statutes.

Problematic gambling during adolescence remains a growing social and public health issue with serious psychological, sociological and economic implications. While the incidence of severe gambling problems amongst youth remains relatively small, the number of individuals with severe gambling problems combined with those at-risk for a gambling problem is substantial. The devastating long-term consequences for those youth with gambling problems, their families, and friends, are enormous. Problematic gambling among adolescents is part of a larger constellation of problems associated with youth risky behaviors that must be addressed.

The field of youth gambling is relatively new, and as a result, there are significant gaps in our knowledge. Much of the research to date has focused on prevalence studies. While there is ample research from the alcohol, drug and cigarette smoking literature to suggest that a risk-resiliency model may have significant benefits for our understanding as to why some individuals are at high risk for developing a gambling problem, further research is required. Governmental agencies, private foundations and the gaming industry would be well advised to help support research initiatives into better understanding this vulnerable population. M uch needed basic and applied research funding is required to help identify common and unique risk and protective factors for gambling problems and other addictive behaviors; longitudinal research to examine the natural history of pathological gambling from childhood to adolescence through later adulthood is required. Molecular, genetic and neuropsychological research is necessary to help account for changes in gambling progression. Research that assesses whether certain gambling activities may become a gateway to subsequent gambling problems is required, and the development and/or refinement of current instruments used to assess adolescent gambling severity is warranted.

A better understanding of the effects of accessibility and availability of gaming venues on future gambling behaviors is required. Specific research needs to focus on gambling advertisements and the general availability of gambling opportunities and their relationship to the onset and maintenance of adolescent gambling and problem gambling. From a treatment perspective, funds must be made available to help those youth currently experiencing severe gambling and gambling-related behaviors and their families, and a variety of treatment models need to be tested and validated. Along with our current treatment initiatives, we must begin a thorough exploration of "Best Practices" for working with these youth and ways in which we can encourage youth to seek help for gambling problems (see Derevensky, et al., 2003; Griffiths, 2001; and Chevalier & Griffiths, in press, as to why youth often fail to seek treatment).

During the past 25 years, Dr. Lesieur's continued seminal research in the field has fostered a better understanding of this complex behavior, its measurement, its social and familial costs, ways of minimizing and preventing gambling problems and methods of treating individuals with gambling problems. The scientific community has been greatly influenced by his early work and continued research efforts. Much of the research described in this paper has in some way been influenced by his work. For most adolescents and adults, gambling remains a form of entertainment without serious negative consequences. Yet, adolescent pathological gamblers, like their adult counterparts, continue to chase their losses, have a preoccupation with gambling and have an impaired ability to stop gambling, despite repeated attempts and their desire to do so. This behavior continues independent of the accompanying negative consequences and ensuing problems. The short- and long-term consequences to the individual, his/her family, friends and peers can be devastating. The next wave of research, as Henry Lesieur (2003) articulated at the Harvard Think Tank in 1995, focused on adolescent gambling and problem gambling has only just begun in earnest.

## References

**American Psychiatric Association (1980).**
*Diagnostic and Statistical Manual of Mental Disorders (3rd ed.).* Washington, DC: Author.

**Arcuri, A.F., Lester, D. & Smith, E.O. (1985).**
Shaping adolescent gambling behavior. *Adolescence, 20,* 935–938.

**Arnett, J. (1994).**
Sensation seeking: A new conceptualization and a new scale. *Personality and Individual Differences, 16,* 289–296.

**Azmier, J. (2000).**
*Gambling in Canada: Triumph, Tragedy, or Tradeoff. Canadian Gambling Behaviour and Attitudes.* Calgary, AB: Canada West Foundation.

**Baer, J.S., MacLean, M.G. & Marlatt, G.A. (1998).**
Linking etiology and treatment for adolescent substance abuse: Toward a better match. In R. Jessor (Ed.), *New Perspectives on Adolescent Risk Behavior.* New York: Cambridge University Press.

**Beck, J. (1998).**
100 Years of "Just say no" versus "Just say know". Reevaluating drug education goals for the coming century. *Evaluation Review, 22* (1), 15–45.

**Blaszczynski, A. (1998).**
*Overcoming Compulsive Gambling.* London: Robinson Publishing.

**Blaszczynski, A. & Nower, L. (2002).**

A pathways model of pathological gambling. *Addiction, 97,* 487–500.

**Blaszczynski, A. & Silove, D. (1995).**
Cognitive and behavioral therapies for pathological gambling. *Journal of Gambling Studies, 11,* 195–220.

**Breen, R.B. & Zuckerman, M. (1996, September).**
*Personality and cognitive of gambling participation and perseverance.* Paper presented at the Tenth National Conference on Gambling Behavior, Chicago.

**Brounstein, P.J., Zweig, J.M. & Gardner, S.E. (1999).**
*Understanding Substance Abuse Prevention: Toward the 21st Century: A Primer on Effective Programs.* Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention, Division of Knowledge Development and Evaluation.

**Bujold, A., Ladouceur, R., Sylvain, C. & Boisvert, J.M. (1994).**
Treatment of pathological gamblers: An experimental study. *Journal of Behavior Therapy and Experimental Psychiatry, 25,* 275–282.

**Chevalier, S. & Griffiths, M. (in press).**
Why don't adolescents turn up for gambling treatment (revisited)? *The Electronic Journal of Gambling Issues: eGambling*

**Coie, J., Watt, N., West, S., Hawkins, J., Asarnow, J., Markman, H., Ramey, S., Shure, M. & Long, B. (1993).**
The science of prevention. *American Psychologist, 48* (10), 1013–1022.

**Costello, E. J., Erkanli, A., Federman, E. & Angold, A. (1999).**
Development of psychiatric comorbidity with substance abuse in adolescents: Effects of timing and sex. *Journal of Clinical Child Psychology, 28* (3), 298–311.

**Derevensky, J.L. & Gupta, R. (1996, May).**
*Risk-taking and gambling behavior among adolescents: An empirical examination.* Paper presented to the Annual Meeting of the National Conference on Compulsive Gambling. Chicago, IL.

**Derevensky, J.L. & Gupta, R. (1999).**
Youth gambling problems: A new issue for school psychologists. *Nova Scotia Psychologist, 12* (11), 8–11.

**Derevensky, J.L. & Gupta, R. (2000).**
Prevalence estimates of adolescent gambling: A comparison of the SOGS-RA, DSM-IV-J, and the GA 20 Questions. *Journal of Gambling Studies, 16* (2/3), 227–251.

**Derevensky, J.L. & Gupta, R. (2001).**
Le problème de jeu touché aussi les jeunes. *Psychologie Québec,*

*18* (6), 23–27.

**Derevensky, J.L., Gupta, R., Dickson, L. & Deguire, A-E. (2002).**
*Prevention Efforts Toward Minimizing Gambling Problems.* Report prepared for the National Council for Problem Gambling, Center for Mental Health Services (CMHS) and the Substance Abuse and Mental Health Services Administration (SAMHSA), Washington, D.C.

**Derevensky, J.L., Gupta, R. & Winters, K. (2003).**
Prevalence rates of youth gambling problems: Are the current rates inflated? *Journal of Gambling Studies. 19* (4), 405-425.

**Dickson, L., Derevensky, J.L. & Gupta, R. (2002).**
The prevention of youth gambling problems: A conceptual model. *Journal of Gambling Studies, 18* (2), 97–160.

**Dickson, L., Derevensky, J.L. & Gupta, R. (in press).**
Harm reduction for the prevention of youth gambling problems: Lessons learned from adolescent high-risk prevention programs. *Journal of Adolescent Research.*

**DiClemente, C.C. (1999).**
Prevention and harm reduction for chemical dependency: A process perspective. *Clinical Psychology Review, 19,* 173–186.

**DiClemente, C. C., Story, M. & Murray, K. (2000).**
On a roll: The process of initiation and cessation of problem gambling among adolescents. *Journal of Gambling Studies, 16* (2/3), 289–313.

**Felsher, J., Derevensky, J.L. & Gupta, R. (2003).**
Parental influences and social modeling of youth lottery participation. *Journal of Community and Applied Social Psychology, 13,* 1–17.

**Felsher, J., Derevensky, J.L. & Gupta, R. (in press).**
Lottery playing amongst youth: Implications for prevention and social policy. *Journal of Gambling Studies.*

**Fisher, S. (1990, August).**
*Juvenile gambling: The pull of the fruit machine.* Paper presented at the Eighth International Conference on Risk and Gambling, London.

**Galambos, N.L. & Tilton - Weaver, L. C. (1998).**
Multiple risk behavior in adolescents and young adults. *Health Review, 10,* 9–20.

**George, E.M. (2003). Preface. In H.J. Shaffer, M.N. Hall, J. Vander-Bilt, and E.M. George (Eds.),**
*Futures at Stake: Youth Gambling and Society.* Reno, Nevada: University of Nevada Press.

**Griffiths, M.D. (2001).**

Why don't adolescent gamblers seek treatment? *The Electronic Journal of Gambling Issues: eGambling, 5* [Online]. Available: www.camh.net/egambling/issue5/opinion/index.html

**Gupta, R. & Derevensky, J.L. (1997).**
Familial and social influences on juvenile gambling. *Journal of Gambling Studies, 13,* 179–192.

**Gupta, R. & Derevensky, J.L. (1998a).**
An empirical examination of Jacobs' General Theory of Addictions: Do adolescent gamblers fit the theory? *Journal of Gambling Studies, 14,* 17–49.

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

**Gupta, R. & Derevensky, J.L. (2000).**
Adolescents with gambling problems: From research to treatment. *Journal of Gambling Studies, 16* (2/3), 315–342.

**Gupta, R. & Derevensky, J.L. (in press).**
Personality characteristics and risk-taking tendencies among adolescent gamblers. *Journal of Social Psychology.*

**Hardoon, K. & Derevensky, J. (2002).**
Child and adolescent gambling behavior: Our current knowledge. *Clinical Child Psychology and Psychiatry, 7* (2), 263–281.

**Hardoon, K., Derevensky, J. & Gupta, R. (2003).**
Empirical vs. perceived measures of Gambling severity: Why adolescents don't present themselves for treatment. *Addictive Behaviors, 28,* 933–946.

**Hardoon, K., Gupta, R. & Derevensky, J. (2002, June).**
*An examination of the influence of emotional and conduct problems upon adolescent gambling problems.* Paper presented at the annual meeting of the National Council on Problem Gambling, Dallas.

**Heather, N., Wodak, A., Nadelmann, E. & O'Hare, P. (1993).**
*Psychoactive Drugs and Harm Reduction: From Faith to Science.* London: Whurr Publishers Ltd.

**Jacobs, D.F. (2000).**
Juvenile gambling in North America: An analysis of long-term trends and future prospects. *Journal of Gambling Studies, 16* (2/3), 119–152.

**Jacobs, D.F., Marston, A.R. & Singer, R. (1985).**
Testing a general theory of addiction: Similarities and differences among alcoholics, pathological gamblers, and overeaters. In J.J.

Sanchez-Soza (Ed.), *Health and Clinical Psychology* (Vol. 4) (pp.265-310). Netherlands: Elsevier Science.

**Jessor, R. (Ed.). (1998).**
*New Perspectives on Adolescent Risk Behavior.* Cambridge, UK: Cambridge University Press.

**Kaufman, F., Derevensky, J. & Gupta, R. (2002, June).**
*The relationship between life stresses, coping styles and gambling behavior among adolescents.* Poster presented at the annual meeting of the National Council on Problem Gambling, Dallas.

**Knapp, T.J. & Lech, B.C. (1987).**
Pathological gambling: A review with recommendations. *Advances in Behavior Research and Therapy, 9,* 21–449.

**Kusyszyn, I. (1972).**
*Studies on the Psychology of Gambling.* New York: Simon & Schuster.

**Ladouceur, R. (2001, December).**
*Conceptual issues in screening and diagnostic instruments: Implications for treatment and prevention of gambling disorders.* Paper presented at the Toward Meaningful Diagnosis of Gambling Disorders: From Theory to Practice Conference, Las Vegas.

**Ladouceur, R., Boisvert, J. & Dumont, J.M. (1994).**
Cognitive-behavioral treatment for adolescent pathological gambling. *Behavior Modification, 18,* 230–242.

**Ladouceur, R., Dubé, D. & Bujold, A. (1994).**
Gambling among primary school students. *Journal of Gambling Studies, 10,* 363–370.

**Ladouceur, R. & Mireault, C. (1988).**
Gambling behaviors among high school students in the Quebec area. *Journal of Gambling Behavior, 4,* 3–12.

**Ladouceur, R., Sylvain, C., Letarte, H., Giroux, I. & Jacques, C. (1998).**
Cognitive treatment of pathological gamblers. *Behaviour Research and Therapy, 36,* 1111– 1119.

**Ladouceur, R. & Walker, M. (1996).**
Cognitive perspectives on gambling. In P.M. Salkovskis (Ed.), *Trends in Cognitive Therapy* (pp. 89-120). Oxford, UK: Wiley.

**Ladouceur, R. & Walker, M. (1998).**
Cognitive approach to understanding and treating pathological gambling. In A.S. Bellack & M. Hersen (Eds.), *Comprehensive Clinical Psychology* (pp.588-601). New York: Pergamon.

**Lesieur, H.R. (1977).**

*The Chase: Career of the Compulsive Gambler.* VT: Schenkman Books, Inc.

**Lesieur, H.R. (2003).**
Adolescent gambling research: The next wave. In H.J. Shaffer, M.N. Hall, J. Vander-Bilt, and E.M. George (Eds.), *Futures at Stake: Youth Gambling and Society.* Reno, Nevada: University of Nevada Press.

**Lesieur, H.R. & Klein, R. (1987).**
Pathological gambling among high school students. *Addictive Behaviors, 12,* 129–135.

**Loeber, R., Farrington, D., Stouthamer-Loeber, M. & Van Kammen, W. (1998).**
Multiple risk factors for multiproblem boys: Co-occurrence of delinquency, substance use, attention deficit, conduct problems, physical aggression, covert behavior, depressed mood, and shy/withdrawn behavior. In R. Jessor (Ed.), *New Perspectives on Adolescent Risk Behavior* (pp. 90-149). Cambridge, UK: Cambridge University Press.

**Marget, N., Gupta, R. & Derevensky, J. (1999, August).**
*The psychosocial factors underlying adolescent problem gambling.* Poster presented at the annual meeting of the American Psychological Association, Boston.

**Murray, J.B. (1993).**
Review of research on pathological gambling. *Psychological Reports, 72,* 791–810.

**Nathan, P. (2001, December).**
*Best practices for the treatment of gambling disorders: Too soon.* Paper presented at the annual Harvard-National Centre for Responsible Gambling Conference, Las Vegas.

**National Gambling Impact Study Commission (1999).**
*National Gambling Impact Study Commission: Final Report.* Chicago: National Opinion Research Center.

**National Opinion Research Center (NORC). (1999).**
*Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission.* Chicago, IL: National Opinion Research Center at the University of Chicago.

**National Research Council (NRC) (1999).**
*Pathological Gambling: A Critical Review.* Washington, DC: National Academy Press.

**Nower, L. & Blaszczynski, A. (2003, October).**
*A pathways approach to treating youth gamblers.* Paper presented at the European Association for the Study of Gambling conference,

Barcelona.

**Nower, L., Gupta, R. & Derevensky, J. (2003, June).**
*Depression and suicidality among youth gamblers: An examination of comparative data.* Paper presented at the annual meeting of the National Council on Problem Gambling, Louisville.

**Nower, L., Derevensky, J. & Gupta, R. (in press).**
The relationship of impulsivity, sensation seeking, coping and substance use in youth gamblers. *Psychology of Addictive Behaviors.*

**Powell, G. J., Hardoon, K., Derevensky, J. & Gupta, R. (1999).**
Gambling and risk taking behavior of University students. *Substance Use and Misuse, 34* (8), 1167- 1184.

**Riley, D., Sawka, E., Conley, P., Hewitt, D., Mitic, W., Poulin, C., Room, R., Single, E. & Topp, J. (1999).**
Harm reduction: Concepts and practice. A policy discussion paper. *Substance Use & Misuse, 34 (1),* 9–24.

**Schaps, E., DiBartolo, R., Moskowitz, J., Palley, C.S. & Churgin, S. (1981).**
A review of 127 drug abuse prevention program evaluations. *Journal of Drug Issues, 11,* 17–43.

**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.

**Ste-Marie, C., Gupta, R. & Derevensky, J. (2002).**
Anxiety and social stress related to adolescent gambling behavior. *International Gambling Studies, 2 (1),* 123–141.

**Stinchfield, R. (2000).**
Gambling and correlates of gambling among Minnesota public school students. *Journal of Gambling Studies, 16* (2/3), 153–173.

**Stinchfield, R., Cassuto, N., Winters, K. & Latimer, W. (1997).**
Prevalence of gambling among Minnesota public school students in 1992 and 1995. *Journal of Gambling Studies, 13,* 25–48.

**Vitaro, F., Ferland, F., Jacques, C. & Ladouceur, R. (1998).**
Gambling, substance use, and impulsivity during adolescence. *Psychology of Addictive Behaviors, 12 (3),* 185–194.

**Volberg, R.A. (1994).**
The prevalence and demographics of pathological gamblers: Implications for public health. *American Journal of Public Health, 84,* 237–241.

**Volberg, R. (1996).**
*Gambling and Problem Gambling in New York: A 10-year Replication Study.* NY: New York Council on Problem Gambling.

**Volberg, R.A. (1998).**
*Gambling and Problem Gambling Among Adolescents in New York.* Albany, NY: New York Council on Problem Gambling, Inc.

**Wildman, R.W. (1997).**
*Gambling: An Attempt at an Integration.* Edmonton, Alberta: Wynne Resources.

**Winters, K.C. & Anderson, N. (2000).**
Gambling involvement and drug use among adolescents. *Journal of Gambling Studies, 16* (2/3), 175–198.

**Wood, R.T.A., Derevensky, J., Gupta, R. & Griffiths, M. (2002).**
Accounts of the U.K. National Lottery and scratchcards: An analysis using Q-sorts. *Journal of Gambling Studies, 18* (2), 161–184.

**Wynne, H., Smith, G. & Jacobs, D. (1996).**
*Adolescent Gambling and Problem Gambling in Alberta.* Report prepared for the Alberta Alcohol and Drug Abuse Commission, Edmonton.

**Zuckerman, M. (1979).**
*Sensation Seeking: Beyond the Optimal Level of Arousal.* New Jersey: Erlbaum.

**Zuckerman, M., Eysenck, S.B.G. & Eysenck, H.J. (1978).**
Sensation seeking in England and America: Cross cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46* 139–149.

*This article was peer-reviewed. All URLs cited were functioning at the time of editing.*
*Submitted: August 29, 2003*
*Accepted: November 7, 2003*

**For correspondence:**
*Jeffrey L. Derevensky, PhD*
*Co-director*
*International Center for Youth Gambling Problems and High-Risk Behaviors*
*3724 McTavish Street*
Montreal, Quebec H3A 1Y2 Canada
*Phone: (514) 398-4249*
*Fax: (514) 398-3401*
*E-mail:: jeffrey.derevensky@mcgill.ca*

*Jeffrey L. Derevensky, PhD, is professor of School of Applied Child Psychology, Department of Educational and Counselling Psychology, and associate professor, Department of Psychiatry, at McGill University. He is a clinical consultant to numerous hospitals, school boards, government agencies and corporations. Dr. Derevensky has published widely in the field of youth gambling, is associate editor of the Journal of Gambling Studies and is on the editorial board of several journals. Dr. Derevensky is co-director of the McGill University's Youth Gambling Research & Treatment Clinic and the International Centre for Youth Gambling Problems and High-Risk Behaviors.*

*Rina Gupta, PhD, is a practicing child psychologist and assistant professor (part-time) at the School of Applied Child Psychology, Department of Educational and Counselling Psychology at McGill University. She has published widely and focuses her research and social policy work in the area of youth gambling issues. Dr. Gupta is on the editorial board of the Journal of Gambling Studies and is co-director of the McGill University Youth Gambling Research & Treatment Clinic and the International Centre for Youth Gambling Problems and High-Risk Behaviors. Dr. Gupta has provided more than 100 clinical and research presentations at national and international conferences, has numerous publications in the field of youth gambling, and has provided expert testimony before a number of provincial and federal commissions in Canada and the United States.*

**issue 10 — february 2004**

contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI.* 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

**Essay**

*[This article prints out to about 5 pages.]*

# Chasing – It's not just about the money: Clinical reflections

*By Loreen Rugle*
*Trimeridian, Inc.*
*Mentor, Ohio, U.S.A.*
*E-mail: lrugle@hotmail.com*

## Abstract

Henry Lesieur's book, *The Chase: Career of the Compulsive Gambler* (1984), focuses on the financial aspects of pathological gamblers' increasingly desperate need to win or get even. This essay suggests that the concept of "chasing" can be extended to explore how gamblers chase in their attempt to meet emotional and spiritual needs. Clinical case examples are presented and implications for treatment are discussed.

**Key words**: pathological gambling, chasing, gambling treatment

*The Chase* (Lesieur, 1984) is one of the seminal works in the field of problem gambling. Its description of the gambler's need to pursue money to cover losses in an ever narrowing spiral and repeatedly returning to gamble with increasing desperation to try to win back losses, depicts one of the key dynamics of pathological gambling.

The financial aspects of chasing are certainly what many, if not most, pathological gamblers are focused on when they enter treatment. One of the most common irrational beliefs among the gamblers I have treated is that "money will solve my problems." However, the behavior of one of my

current clients contradicts this belief. After severe losses he gambled again and won enough money to pay off most of his gambling debt. But he was unable to actually carry out his plan to withdraw his winnings from his offshore sports betting account. Of course, he bet this money and lost again. Although he is able to acknowledge, at least in part, that no matter how much money he won at times, it was never enough. He also clings tenaciously to the distorted belief that his gambling is about money.

Clearly, in this client's case and many other clients I have worked with, chasing is about more than throwing good money after bad. It involves more than the material need for money; it is about emotional and spiritual need as well. Many gamblers are chasing ego losses. Richard Rosenthal (1995) wrote persuasively about the phenomena of the "bad beat," the fluky loss that robs the gambler of a "sure win." Losses like this may enrage the gambler who feels that fate has been unfair. This kind of thinking contributes to a sense of victimization and vulnerability. The gambler must therefore chase to overcome these feelings so he/she can regain a sense of power and control. The gambler focuses on having power over something external; power over the other players at the table or the fall of the dice. Gamblers may think that power and control can also mean having special knowledge, skills, abilities or luck that allow them to feel protected and invulnerable. The more the gambler loses, the more out of control, and small and vulnerable he/she feels, and the more desperate the chasing becomes.

Gamblers seeking relief and escape often care little about winning. Rather, research has suggested that their goal is to keep gambling as long as possible (Hing & Breen, 2001). What these gamblers are chasing is oblivion: repeatedly returning to gambling, even though they often don't expect to win. They use gambling as an escape from life's problems rather than as a way to cope with their problems in a more effective manner; yet, their problems mount, and they feel increasingly overwhelmed. They continually return to gambling to chase an illusory feeling of peace. Gambling also adds to their existing problems, so the chasing intensifies.

One client described a horrendous childhood of chaos and abuse. When her abusive, alcoholic father would come home, he started yelling at whomever he saw first. When this happened, she would curl up in a corner and pretend she was invisible. She described the time that she spent playing video poker as giving her the same relief. She could be at her machine and be invisible, oblivious to any pain and stress in her life. No one could hurt her while she was gambling.

The pathological gambler is thus chasing a desire, and at the same time, running away from pain, fear, vulnerability. It is interesting that in Buddhist tradition, desire or craving is the first in a list of hindrances or "afflictions" that lead to suffering. From this perspective, craving or desire represents an attempt to hold onto what is impermanent. Craving is based on the belief that we do not have or have within ourselves what we need to be happy. Therefore, we must have something beyond ourselves and beyond

what we have right now. When gamblers chase, they maintain the illusion that they're "catching" what will bring them happiness, satisfaction, peace. However, ironically, the faster the gambler chases what always seems to be just out of reach, the greater the desire becomes. The pathological gambler becomes attached to his/her desire: "I must be a winner in order to be happy." "I must gamble to get relief." In this way, the gambler defines him/herself as someone who must have something more, better, different than what they are right now. Gamblers who chase, are never satisfied with who they are or what they have at the present moment.

Chasing is therefore always about the past and the future. It is about evening the score for the emotional losses, inequities and mistakes of the past. It is about running away from the past and the present as much as it is about chasing a fantasy future that will bring an end to suffering. The next bet will solve the problems, alleviate the pain or right all the wrongs.

In the intensity of the chase, it is nearly impossible for gamblers to accept that they are straining to reach the unattainable. The carrot seems to be so tantalizingly within reach. In the 12-step tradition, the first step of recovery is accepting that one is powerless, in this case, powerless over gambling. For the gambler, this means truly accepting that the chase is over. While the chase has created mental, emotional as well as financial suffering, when it stops, the gambler comes face to face with the reality of the present moment. For most gamblers, the pain of facing reality far exceeds the familiar suffering of the chase. At least with the chase, they have the illusion of hope. When gamblers give up the chase, they often feel as if their lives are completely bereft of hope.

One of my clients found it very difficult to stop chasing; she was chasing the years she felt she had lost when she gambled. Chasing gave her the false hope that winning enough would make up for lost relationships, lost time, lost jobs, lost opportunities. Every time she stopped chasing, depression, self-anger and despair would set in, as she struggled to accept what she had lost.

Chasing is "mindless" activity. Clearly, the gambler who chases oblivion seeks the perfect mindless state — not thinking and not feeling. However, even for someone who gambles to chase power and control and who seems to put much thought into gambling systems, handicapping or strategizing, the chase becomes mindless repetition. All the mental energy that goes into the scheming, conniving, lying and planning of the chase, the next bet is the "trance" of chasing, as psychologist and meditation teacher Tara Brach (2003) would label it.

When a pathological gambler struggles to end the chase, the escape to mindlessness and oblivion begins to collapse. In fact, it is the goal of treatment and recovery to help the gambler become increasingly "mindful" of themselves and the reality of the world around them. This mindfulness involves the willingness to recognize craving, the desire to chase, to tolerate the discomfort of not acting on that desire. By being willing to

listen to desire and to deeply understand it, gamblers can learn a true sense of empowerment and can have control over their lives.

Willingness to maintain stillness rather then engaging in the chase does not come easily for most pathological gamblers. Many who gamble find that when they stop chasing, they experience nearly intolerable feelings and thoughts. Even if they refrain from gambling, they look for other ways to chase: chasing a job, a relationship, other forms of risk, competition or escape. They continue to try to chase happiness by seeking something, someone or some experience outside of themselves.

Increasingly, in my clinical practice, I have appreciated the pressure my clients experience to continue the chase. It is difficult for them to accept that happiness, serenity and satisfaction are not somewhere "out there" just beyond reach, but rather that these feelings are found within, here and now. Cravings and thoughts about gambling are about chasing the illusion. Even for the atheist or the agnostic, chasing can be viewed as a ritual in the worship of a false idol that only promises willful power or oblivion. A true spirituality (whether one believes in a higher power or not) involves the self-discipline of value-based behavior, willingness, self-acceptance and self-awareness that can lead to a mindful serenity and empowerment, rather than mindless oblivion.

## References

**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*, 47–67

**Lesieur, H.R. (1984).**
*The Chase: Career of the Compulsive Gambling.* (2nd ed.). Rochester, VT: Schenkman Books, Inc.

**Rosenthal, R.J. (1995).**
The phenomenonology of "bad beats": Some clinical observations. *Journal of Gambling Studies, 11*, 367–372.

*This article was not peer-reviewed.*
*Submitted: October 20, 2003*

*Loreen Rugle, PhD is a clinical psychologist and she has focused on treatment and research of pathological gambling since 1984. She is currently clinical director for Trimeridian, Inc., a company dedicated to the treatment and research of problem and pathological gambling that has provided problem gambling technical assistance in Arizona, Indiana, Illinois, Louisiana and Washington. Trimeridian has also operated inpatient and outpatient treatment programs in Indiana and Las Vegas. Prior to her*

*work with Trimeridian she was coordinator of the Brecksville Veterans Administration Gambling Treatment Program from 1989 to 1992. She maintained her clinical and research involvement with pathological gambling as she became deputy director of the Veterans Addiction Recovery Center at Brecksville, Ohio.*

*Dr. Rugle has published on attention deficits and personality factors in pathological gamblers, comparisons of pathological gamblers and substance abusers and treatment approaches to pathological gambling.*

**issue 10 — february 2004**


contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

**Research review**

*[The article prints out to about 53 pages.]*

# The role of medication in the treatment of pathological gambling: Bridging the gap between research and practice

*By Richard J. Rosenthal*
*UCLA Gambling Studies Program*
*Los Angeles, California, U.S.A.*
*E-mail: rrosenth@ucla.edu*

## Abstract

After reviewing the literature on the pharmacotherapy of pathological gambling, the author discusses treatment strategies and areas for future research. The clearest indication for medicating the pathological gambler is for the treatment of comorbid disorders, primarily depression, bipolar disorder, and attention deficit hyperactivity disorder. However, there are difficulties in diagnosing the dually disordered gambler. Other current pharmacological approaches involve the use of medication to treat specific symptoms, traits, or symptom clusters; to make negative affects more tolerable; and to reduce cravings. Future approaches will be directed at subgroups of gamblers. This may include genetic profiling, paired with recognition of neurotransmitter deficits, and the identification of clinical syndromes and subtypes. The author also discusses the kindling hypothesis as it may pertain to pathological gambling. The presence of kindling would make a strong case for earlier and more aggressive use of medication and for long-term maintenance to prevent relapse.

**Key words:** pathological gambling, pharmacotherapy, treatment,

subtyping, comorbidity, cravings.

## Introduction

Medication should be thought of as an adjunct to the treatment of pathological gambling. Most gamblers can be treated successfully without it. Even when one does prescribe medication, it is still necessary to help the patient identify and express feelings, confront difficult situations, develop social skills, and deal with relationship problems. In fact, medication is given in the context of a relationship.

It is in the therapeutic relationship that we observe and try to solve problems in compliance. Less than 40% of patients with physical illnesses follow the doctor's instructions for dose and frequency of their medications (Buckalew & Buckalew, 1995; review by O'Brien & McLellan, 1996). One-third of the general population does not get prescriptions filled, and over 40% will use someone else's medication (Buckalew & Buckalew, 1995). Full compliance occurs only 25% of the time. Compliance is an even more serious problem with pathological gamblers because they are often ambivalent about giving up gambling or altering lifelong patterns of coping, no matter how ineffective these strategies may have been. What these gamblers often express is the feeling that something is being taken away from them. Problems with trust exist for both therapist and patient.

Given such issues, what then is to be gained by attempting to medicate pathological gamblers? First of all, there are a number of studies that point toward the importance of biological factors in gambling addiction. Kruedelbach and Rugle (1994) found gamblers to be more impulsive than cocaine addicts or alcoholics, and also found that, at least for a subgroup of pathological gamblers, high impulsivity preceded the history of gambling problems. Studies of biological markers have suggested deficits in the serotonergic (Moreno, Saiz-Ruiz & Lopez-Ibor, 1991; Carrasco, Saiz-Ruiz, Hollander, Cesar & Lopez-Ibor, 1994; Blanco, Orensanz-Munoz, Blanco-Jerez & Saiz-Ruiz, 1996; DeCaria, Begaz & Hollander, 1998a), dopaminergic (Bergh, Eklund, Sodersten, Nordin, 1997), and noradrenergic (DeCaria et al., 1998a) systems. A genetic predisposition is suggested by family histories of problem gambling (Gambino, Fitzgerald, Shaffer, Renner & Courtnage, 1993; Winters, Stinchfield & Fulkerson, 1993; Winters, Bengston, Dorr & Stinchfield, 1998), twin studies (Eisen et al., 1998; Slutske et al., 2000), and genetic research (Comings et al., 1996; Ibanez, Perez de Castro, Fernandez-Piqueras & Saiz-Ruiz, 2000; Comings et al., 2001). EEG (Goldstein, Manowitz, Nora, Swartzburg & Carlton, 1985) and neuroimaging studies utilizing PET scans and MRIs (Goyer, Semple, Rugle & McCormick, 1999; Potenza, 2001) show significant differences between pathological gamblers and normal controls. Potenza found that the gambling urges of the problem gambler activate the same regions of the brain (e.g. the anterior cingulate) as the cocaine cravings of people with chemical dependencies.

For the clinician, practical considerations argue for using medication. Medication can help to achieve abstinence and can help provide the much-needed structure and support necessary to maintain some patients in treatment. The continuation of gambling, with its potential for large, sudden financial losses, illegal activities that lead to incarceration, attempted suicide, and other serious consequences, can disrupt or threaten treatment. One cannot treat a patient who fails to show up. Even when the gambler is physically present, if still actively gambling he or she may be emotionally unavailable, dissociated, or cognitively impaired. We tend to think of medication more for the difficult-to-treat end of the spectrum, those patients who are multi-impulsive, who have multiple addictive and other comorbid disorders, who have severe and intractable cravings, and who act out or are noncompliant. These patients may make up a relatively small percentage of our treatment population, but they are the ones we spend the most time thinking about.

There are also economic considerations that argue for using medication, including pressures from managed care, reduced or nonexistent insurance coverage, and the already overburdened finances of most compulsive gamblers. While we speak of a continuum of care for addictive disorders, therapists treating gamblers are hard pressed to make do with what is available. For example, in many parts of the country Gamblers Anonymous (GA) may meet only weekly or not at all, and may not conform to patients' needs with regard to gender, age, ethnicity, or even language. Medication, again, helps to provide the structure and support needed for abstinence and recovery.

This paper will try to accomplish two things: first, to review the published research on the pharmacotherapy of pathological gambling and, second, to explore current and potential clinical approaches. Clinicians will always have to make choices based on what they are trying to accomplish. When choosing to medicate a pathological gambler, clinicians must consider what they are medicating, and in which pathological gamblers will a given medication be effective?

## Review of the pharmacotherapy literature

Research on the pharmacotherapy of pathological gambling is in its infancy, with funding for clinical trials having only recently become available. The studies published to date (see Table 1)

(Click here to view the table: a new browser window will open.)

have utilized three classes of medications: serotonin reuptake inhibitors (SRIs), mood stabilizers and opioid antagonists. In this and the following sections, we will highlight promising areas of investigation and discuss gaps in the literature.

### Serotonin reuptake inhibitors

Hollander, Frenkel, DeCaria, Trungold and Stein (1992) described the treatment of a female gambler with the partial serotonin reuptake inhibitor clomipramine (Anafranil). This medication was the first to receive FDA approval for the treatment of obsessive-compulsive disorder, and Hollander selected it for the first controlled study of pathological gambling because he thought that the two disorders were related. He and his colleagues conducted a double-blind, placebo-controlled study, 10 weeks to each phase. The patient was minimally improved on the placebo, then became abstinent on the medication and did not gamble for the duration of the trial. Except for a relapse at week 17, she remained abstinent on open maintenance for an additional seven months. Significant in her personality were some compulsive features, including perfectionism and hoarding. She also had a history of social phobia, another disorder that responds well to serotonergic drugs. Also noted was that this bingo, cards, and slot machine player had a prior history of a one-and-a-half-year abstinence with Gamblers Anonymous. However, when she entered the study she had been gambling consistently two to three times per week during the previous six and a half years.

Hollander et al. (1998) then conducted a single-blind placebo lead-in (eight weeks each phase) fluvoxamine (Luvox) study. Of 16 pathological gamblers, six dropped out during the placebo phase. Seven of the 10 who remained responded favorably, as measured by the clinician-rated Clinical Global Impression (CGI) scale and by the Yale-Brown Obsessive Compulsive Scale modified by the authors for pathological gambling (PG-YBOCS). Reliability and validity of the PG-YBOCS have been presented (DeCaria et al., 1998b) but are as yet unpublished. In addition to these positive measures of improvement, all seven responders described a decrease in cravings and the achievement of abstinence. Of the three fluvoxamine nonresponders, two had comorbid cyclothymia. Since fluvoxamine and the other SSRIs (selective serotonin reuptake inhibitors) can "switch" depressed patients into a manic phase or bring out an underlying bipolar disorder, there was concern about the medication exacerbating their cyclothymia, particularly at the higher dose (250 mg/day) administered to the nonresponders. The authors recommended that in future studies in which pathological gamblers are to be given SSRIs, subjects with bipolar disorder (types I and II) should be excluded.

Following up on the promising data from their pilot study, Hollander et al. (2000) designed the first randomized double-blind placebo-controlled medication study on pathological gambling. Gamblers with substance abuse or bipolar disorder (type I or II) were excluded. Each subject received eight weeks of fluvoxamine and eight weeks of placebo, administered according to a cross-over design. Of the 15 pathological gamblers who began the study, 10 subjects (all males) qualified as minimum treatment completers by remaining in the study for at least 12 weeks. Dosage began with 50 mg of fluvoxamine, and was increased weekly to a maximum of 250 mg/day and a minimum of 100 mg/day based on therapeutic response and tolerance. There was a significant placebo response early in the study, so that fluvoxamine and placebo were both

effective in phase I. The response to the placebo disappeared during the second phase, while the fluvoxamine response was sustained. Though there was only a trend towards significance on the PG-YBOCS, scores on the CGI scale were much improved or very much improved in 67% of the fluvoxamine group in phase II, as compared to just 25% of those on placebo. It should be noted that this was a very small sample. The number of fluvoxamine responders in phase II was four.

The authors concluded that fluvoxamine is well tolerated and may be effective in the treatment of pathological gambling. However, they point out the limitations of their research, specifically mentioning small sample size, short duration of treatment, and the homogeneity of their group of subjects with regard to gender, ethnicity, gambling preference, and absence of comorbidity. They acknowledge that their findings may not be applicable to the noncompliant, difficult-to-treat gambler. And, finally, they caution that the long-term effectiveness of fluvoxamine still needs to be evaluated.

Zimmerman, Breen and Posternak (2002) conducted an open-label study of citalopram (Celexa). Fifteen pathological gamblers were given the medication for up to 12 weeks. Most showed clinical improvement within the first two weeks; gains were maintained for the nine who completed. Since there were no controls, it is difficult to say this was not a placebo effect. It should be noted that patients in individual or group psychotherapy were not excluded as long as there was no change in the type or frequency of their therapy during the course of the study. Citalopram was begun at 10 mg/day, then increased to 60 mg depending on response and side effects.

As compared to Hollander's two studies, in which most of the subjects were early onset gamblers (average duration of problem gambling 20 years) engaged in the more traditional games (primarily horse racing or sports betting), all of Zimmerman's subjects were machine gamblers (n=13) or played lottery scratch-off tickets (n=2). Two-thirds had been problem gamblers for less than five years. In order to more closely approximate a treatment population, Zimmerman did not exclude subjects with current depression, anxiety, eating disorders, or other impulse disorders. Therefore, eight of 15 subjects (53.3%) were diagnosed with major depressive disorder at baseline. The most common nondepressive comorbid disorder was panic disorder (20%, n=3). These comorbid disorders would be expected to respond to citalopram.

The authors reported that, in addition to decreases in days gambling and amount of money lost, there was a significant decrease in subjects' level of depression. To see whether improvement in gambling was due to the effect on comorbid depression, they compared those with major depressive disorder (n=8) and those without it (n=7) and found a similar response in both groups. However, it is possible that even those who did not have a major depressive disorder met criteria for subsyndromal depression or dysthymia. Unfortunately, the typical instruments for rating

depressive symptoms are not well suited for evaluating more mildly depressed patients.

Blanco, Petkova, Ibanez and Saiz-Ruiz (2002) attempted to replicate Hollander's findings while addressing the question of efficacy over a longer time period. Thirty-two pathological gamblers were treated for six months in a double-blind, placebo-controlled study using the same dosage of fluvoxamine as Hollander's group. Outcome measures included reductions in money and time spent gambling per week. Subjects were allowed to use a benzodiazepine, clorazepate, for anxiety or insomnia, and the antiemetic domperidone for nausea. All patients were encouraged to attend self-help or therapy groups focused on pathological gambling.

The study failed to confirm Hollander's results. For the overall sample, fluvoxamine was not statistically different from placebo. However, it was superior to the placebo for a subgroup of males and younger patients. Two major problems were encountered by the research team. The first of these was a high placebo response that persisted well into the study. Even when they used abstinence as their measure of success, there was a 54% placebo response at the end of four months. A second problem was the high dropout rate among the fluvoxamine group. Of the 15 subjects who began on the medication, barely half were still enrolled by the midpoint of the study (12 weeks) and only three of the 15 lasted until the end of the trial. Reasons for noncompletion were lack of compliance (7), side effects of medication (3), or unknown (2). The authors noted that some of the patients who were dropped for noncompliance were actually experiencing clinical improvement. It is not clear what the compliance issues were. Similarly, there are difficulties knowing how to interpret the overall findings. Blanco used different outcome criteria from Hollander's group, and the high dropout rate makes interpretation of results problematic. The unexpectedly high placebo response may be due to subjects' participation in gambling-related self-help and therapy groups. The authors acknowledge a lack of data on this.

Paroxetine (Paxil) was the subject of a double-blind, placebo-controlled study by Kim, Grant, Adson, Shin and Zaninelli (2002). Pathological gamblers who did not have a co-morbid Axis I disorder (as measured by the SCID-I) and were not in psychotherapy or attending GA were enrolled in a one-week placebo run-in phase followed by eight weeks' treatment with paroxetine. The number of women in the study (n=30) was double that of men (n=15), but severity of gambling symptoms was similar for both genders. Twenty-one of the 23 gamblers in the paroxetine group (91.3%) played slot machines. The second most common form of gambling was bingo (26.1%). Of the 45 subjects who were randomly assigned, only four failed to complete all study visits. Two from the paroxetine group missed single visits, and one from each group discontinued because of side effects. Dosages were increased in 10 mg weekly increments from 20 mg/day at the start of the study to a maximum of 60 mg/day. The medication was extremely well tolerated.

Statistically significant improvement on the CGI and on a 12-item instrument developed by the authors, the Gambling Symptom Assessment Scale (G-SAS), was found for weeks six through eight. As measured by the CGI, 47.8% of the paroxetine group was very much improved and 13% much improved by study endpoint, compared with just 4.5% and 18.2%, respectively, for the placebo group. For each week that an assessment was done, the reduction in the G-SAS total score for the paroxetine group was greater than for the placebo group, and by the end of the study the mean G-SAS total score had decreased 52% in the paroxetine group as compared to just 23% in the placebo group. The gambling urge subscale of the G-SAS, which measures intensity, frequency, and duration of gambling urges, had decreased 37.9% for the paroxetine group at study endpoint, compared to a decrease of only 19.9% for the placebo group.

Despite these impressive numbers, by the study's conclusion, the percentage (relative to baseline) of weekly income lost by gambling in the previous week was reduced by just 20.2% for the paroxetine group. For the placebo group, there was a 12.2% reduction in weekly gambling losses compared to baseline. The difference between the two groups was not significant. The authors discount the discrepancy between the minimal reduction in gambling losses and the significantly positive findings reflected in their measures of assessment. They assert that monies lost as well as frequency of gambling do not reflect gambling symptom severity accurately. They believe that gambling frequency and amounts lost reflect money availability and income, not urges and desire to gamble. The reader could counter that this modest reduction in gambling losses casts doubt both on the significance of the study findings and on the validity of the G-SAS and CGI as meaningful outcome measures.

**Opioid antagonists**

Crockford and el-Guebaly (1998) published a single-case report on the use of the opioid antagonist naltrexone (ReVia) to reduce gambling cravings. The patient was a 49-year-old male with a 13-year history of alcohol dependence and a nine-month history of pathological gambling (primarily video lottery terminals). He was initially prescribed fluoxetine (Prozac) for depression and enrolled in a day treatment program that addressed both addictive disorders. The patient also attended two gambling support groups, continued with AA, and made financial reparations. Despite improvement of his mood and one month of abstinence from both alcohol and gambling, he continued to experience strong cravings for gambling and drinking. He was started on naltrexone 50 mg daily and within 48 hours he described a cessation of his cravings. This was maintained over the next four weeks, and there were no relapses during this period. No further follow-up was provided.

Kim (1998) published a preliminary report of 15 patients with impulse control disorders treated with naltrexone. Of the three case reports presented to illustrate efficacy, one was a 55-year-old pathological gambler who was both a compulsive shopper and a severe slot machine

gambler. There was no change during the two weeks he was on a 50 mg per day dose. Within a few days of increasing to 100 mg per day, he reported a cessation in anticipatory excitement when driving to and entering a casino. While there he had no urge to gamble, and thereafter had no cravings or difficulty abstaining. The compulsive shopping symptoms also disappeared. The patient's experience is described in his own words, lending immediacy and conviction to the report of his successful treatment.

Based on experience treating these and other patients with impulse disorders, as well as his review of the literature, Kim concluded that the 50 mg dose of naltrexone used in clinical trials for various disorders is ineffective except for patients with alcohol dependence. He found that the dose has to be titrated upwards, with most patients responding in the 100 mg to 200 mg range. Kim ends his paper by noting that most of these impulsive behaviors are pleasurable for the individual and patients may not wish to give them up. He cautions that the utility of naltrexone may be limited to those who are motivated for treatment.

Kim and Grant (2001) then conducted an open study to determine the short-term (6-week) efficacy and safety of naltrexone in treating pathological gamblers. Subjects with another Axis I disorder and those attending GA or in any kind of therapy were excluded. Seventeen subjects (7 male, 10 female) were enrolled; they averaged a DSM-IV score for pathological gambling of 8.5. Measures of efficacy were the G-SAS and the patient and clinician versions of the CGI. Naltrexone was begun at 25 mg/day for the first two days, then the dose was raised 50 mg each week until a clinically optimal therapeutic dose was reached or to a maximum daily dose of 250 mg. If unpleasant side effects appeared, the dose was decreased until they were controlled. Three subjects were terminated from the study in weeks two and three because they could not tolerate the medication (side effects included nausea, diarrhea, increase in alkaline phosphatase). The average dose for effective symptom control was 157 mg/day. Of those who responded favorably, most did so by the end of the fourth week. By week six, when the study ended, most subjects had stopped gambling. Given the short duration of the study, the authors consider the possibility that improvement may have been a placebo response. In support of the benefit being due to the medication, they note that three months post study two of the gamblers who had been free of gambling symptoms tried to discontinue their naltrexone, only to start gambling when the dose was lowered to 50 mg. They became abstinent again when the medication was increased.

The first controlled study of naltrexone was a double-blind, 11-week trial conducted by Kim, Grant, Adson and Shin (2001b). Subjects met DSM-IV criteria for pathological gambling (average score 8.1), but were excluded if they had a current Axis I diagnosis, had abused alcohol or drugs within the previous three months, or had a severe personality disorder (e.g. borderline or antisocial). The majority of subjects were women, and slot machines were the most common form of gambling. After a one-week

placebo lead-in, naltrexone was started at 25 mg/day and titrated upward until maximum symptom improvement or until the dosage reached 250 mg/day. Out of 83 subjects enrolled in the study, data from 45 patients were analyzed. These 45 completed week six, which corresponded with two weeks of naltrexone at 100 mg/day. Twenty of the 45 had been randomized to naltrexone. Despite the high dropout rate, it should be noted that most subjects tolerated the medication quite well. The largest number of subjects (n=22) was terminated due to a significant placebo response (50% improvement or greater) during the first week placebo lead-in.

Symptom change was assessed using the G-SAS and clinician- and patient-rated versions of the CGI. At study end, 75% of the naltrexone-taking subjects were much or very much improved on all three measures, as compared to 24% of those on placebo. While this is a lower standard than abstinence, it is still impressive. The average dose of naltrexone at the end of the study was 188 mg/day. The only side effects reported were nausea in the first week of treatment and an increase of liver enzymes in patients concurrently taking analgesics. It is worth noting that the subjects who had moderate or higher levels of urge symptoms at baseline responded better to the medication. The authors concluded that pre-treatment severity of gambling urges may identify naltrexone responders, and that using this as a stratification variable should improve group outcome. (There is support for this from studies of alcoholics treated with naltrexone; e.g. Jaffe et al., 1996; Monterosso et al., 2001.) However, since Kim and his colleagues only measured weekly average urge symptoms, little could be said about the temporal or causal relationship between urges and gambling behavior. Nonetheless, they also observed that, in addition to reducing urges to gamble, naltrexone reduced the subjective experience of pleasure when subjects did gamble.

Despite the safety demonstrated by Kim's study, some clinicians may be put off by the FDA's "black box" warning of potential liver damage when naltrexone is used in doses greater than 50 mg/day. Kim, Grant, Adson and Remmel (2001a) believe this to be due to a drug interaction. They caution patients about using analgesics while on naltrexone, and they also closely monitor for hepatotoxicity. They recommend liver function tests prior to starting the medication, then at two- to four-week intervals for the first three months, monthly for the next three, and then every three to four months (Grant & Kim, 2002).

**Mood stabilizers**

In 1980, just prior to the introduction of pathological gambling in DSM-III, Moskowitz published an article entitled, "Lithium and Lady Luck." He described the treatment of three compulsive gamblers with lithium carbonate (1800 mg/day). Significant abstinence was achieved in all three cases, with marked improvement documented by long-term follow-up. However, it is important to note that two of the patients were clearly bipolar, and the third probably so.

Haller and Hinterhuber (1994) published a double-blind, controlled study (12 weeks each phase) of one gambler treated with carbamazepine (Tegretol). The patient's gambling continued while on the placebo with no improvement, but he became abstinent on carbamazepine by week two and did not gamble for the duration of the trial. In fact, he remained abstinent on open maintenance (600 mg/day) through the two and a half years he was followed. The results are particularly impressive given his prior history of treatment failures. Despite years of behavior therapy, psychoanalysis, and GA, his longest previous period of abstinence had been three months. Carbamazepine is an anticonvulsant that has been used as a mood stabilizer, particularly in patients with bipolar disorder. There is no mention in the report of cyclothymia or emotional instability. We are told only that the patient played roulette to relieve stress and depression. An EEG showed "minimal nonspecific abnormalities," while an extensive neurological evaluation was normal.

Pallanti, Quercioli, Sood and Hollander (2002) conducted the first controlled trial of mood stabilizers for the treatment of pathological gambling. Forty-two pathological gamblers (32 male, 10 female) were enrolled in a 14-week, randomized, single-blind study of lithium and valproate. Subjects with bipolar disorder were excluded, as were those with schizoaffective disorder, schizophrenia, organic illnesses, and comorbid alcohol or drug addiction. None of the subjects received psychosocial or supportive therapies during the trial.

The lithium group was given 600 mg/day for the first four days, 900 mg/day for days five through nine, then up to 1200 mg/day for the remainder of the trial. The second group received 600 mg/day of divalproex sodium for the first five days, and then up to 1500 mg/day. Titration upward for both groups depended upon weekly plasma levels and how well the medications were tolerated. At the end of the 14 weeks, both groups showed significant improvement on the PG-YBOCS. According to the CGI, 14 (60.9%) of the 23 subjects taking lithium and 13 (68.4%) of the 19 subjects taking valproate were much or very much improved. It should be noted that eight of the nine lithium nonresponders dropped out of the study (six due to noncompliance, two due to side effects). Only three of the 19 subjects on valproate dropped out. The authors speculate that a possible reason for this discrepancy is valproate's known anxiolytic effect.

The researchers tried to exclude pathological gamblers with bipolar disorder, so that a decrease in gambling behavior would not be attributed to treatment of the comorbid mood disorder. In this they may have been only partly successful, as they acknowledge that use of the SCID as their primary diagnostic instrument may have allowed subjects with bipolar II and other subtle mood disorders to enter the study. They recognize the overall preliminary nature of their results, and call for a double-blind, placebo-controlled trial to confirm their findings.

**Methodological and other considerations**

How best to measure outcome remains uncertain, and this is clearly something with which gambling researchers are grappling. For example, in the study we just discussed (Pallanti et al., 2002), one of the two outcome measures, the PG-YBOCS, showed a mean behavior score reduction from 11.9 to 8.6 for the lithium group and an 11.0 to 7.0 reduction for the valproate group. While statistically this improvement is considered significant, for the individual gambler it may mean a reduction from seven hours a day of video poker to three hours a day, or from three nights a week of gambling to one night a week. Similarly, Kim's double-blind paroxetine study reported impressive reductions in the CGI and G-SAS scores for the medication group, but only a 20% reduction in amounts of money lost. It is questionable whether family members would agree with the authors in calling these treatments successful.

One also cannot help wondering about the stability of such results. Patients who abstain from alcohol (O'Malley et al., 1996) and cocaine (Carroll et al., 1994) while being treated with naltrexone have a significantly better long-term outcome than those who only reduce the amounts they drink or use. Are severe pathological gamblers who reduce but do not stop gambling as likely to maintain their improvement as those who achieve abstinence? This is a question to be asked of all clinical trials that take reduction of gambling or overall subjective improvement as their goals, as opposed to abstinence, which is favored by GA and most clinicians.

It is noteworthy that most studies found a strong early placebo response in pathological gamblers. This corresponds with something one often observes clinically. Pathological gamblers are often good beginners. While they may start therapy, jobs, or relationships with enthusiasm, they have difficulty staying the course. One must be cautious about clinical trials of only a few weeks or months. Furthermore, an experience shared by clinicians treating a variety of disorders is that SSRIs sometimes seem to lose their effectiveness toward the latter part of the first year and during the second year.

Whenever naltrexone has been used to treat addictive disorders, problems with compliance have limited its efficacy. For example, Greenstein et al. (1981) found that less than 10% of patients who began naltrexone treatment for opioid dependence were still taking the medication after two months. The best results with alcoholics were obtained in highly motivated subjects, such as doctors and other professionals, in mandated treatment programs (Washton, Gold & Pottash, 1984). The long-term use of naltrexone for pathological gamblers raises similar issues about compliance. Motivation for staying on the medication may wane for a variety of reasons. Patients may miss gambling, become distracted or overwhelmed by problems avoided while they were gambling, or become overconfident about their recovery. According to the alcoholism literature (Pettinati, Volpicelli, Pierce & O'Brien, 2000), patients who took less than 80% of their pills had outcomes no better than if they were on placebo. Kim has patients divide

their dose once they are on 100 mg/day or more (Kim et al., 2001a). Since most do not respond until 150 mg is reached, that means that most gamblers are taking it twice daily. Even if only taking it once a day, patients can forget to take their medication, skip doses, or rationalize cutting down in anticipation of a return to gambling. A follow-up of alcoholics treated with naltrexone found that, when patients stopped taking the medication, they relapsed to pre-treatment levels of addiction (O'Malley et al., 1996). Therefore, follow-up at six months and one and two years is needed. None of the gambling studies to date address questions of how long patients should remain on medication, or about intermittent versus long term use. The authors acknowledge the preliminary nature of their findings and the need for further studies addressing the questions they raise.

Kim (personal communication, June 25, 2001) followed up his naltrexone responders and found that almost all of them wanted to stay on the medication, but were unable to because insurance did not cover it. The retail price of ReVia is between $695 and $925 (US) a month for the dosage found effective (150–200 mg); generic naltrexone would cost between $570 and $760 (US) a month. When possible, Kim keeps patients on naltrexone for two to three years, then attempts to stop the medication. If their gambling urge returns, he has them resume naltrexone. He most often combines naltrexone with an SSRI, and, when necessary, combines it with cognitive behavioral therapy. Results are good, he states, and abstinence is maintained when patients stay on naltrexone. However, he has found that patients frequently drop out of treatment after three to six months. Those patients are lost to follow-up.

There are no studies on the treatment of pathological gambling which look at combinations of medication, although the practice of combining naltrexone with an SSRI was found safe in a large scale multi-site trial involving alcoholics (Croop, Faulkner & Labriola, 1997). Nor are there studies looking at medication combined with psychotherapy, or comparing brief psychotherapy and/or educational interventions with medication. For the type of subject found in most clinical trials (absence of comorbidity, reasonable motivation), this latter approach might be efficacious. We would also like to see a study in which naltrexone is administered to those who are actively gambling, as opposed to those who are trying to avoid relapse. Sinclair (1998) has advocated such an approach with alcohol dependence. A sustained release or depot form of naltrexone has been in development. Nalmefene, an opioid antagonist structurally similar to naltrexone, is being tested in a multi-site study of pathological gamblers.

Several of the pharmacotherapy studies are promising. However, until they are expanded and replicated their results must be thought of as preliminary. An editorial in the *New England Journal of Medicine* (Fuller & Gordis, 2001) reminds us that "as the value of any medication is being established, randomized clinical trials are not always consistent in their findings." The example they discuss is the use of naltrexone for treating alcohol dependence. While initial reports were enthusiastic, larger studies

(Kranzler, Modesto-Lowe & Van Kirk, 2000; Krystal, Cramer, Krol, Kirk & Rosenheck, 2001) found the medication no more effective than the placebo. However, the daily dosage of naltrexone was 50 mg, and participation in the studies was not dependent on the presence of cravings. In these studies, clinicians find a "small to medium effect" (Litten, 2002), with success dependent on the careful selection of patients. Still, there is a tendency to think that each new medication will be a wonder drug. The reality is that subsequent studies often do not bear out initial findings, side effects are discovered, expectations lowered, but these same less-than-perfect drugs still have a useful place in our armamentarium.

## Models for treatment with medication

Strictly speaking, there is no medication that is "anti-gambling" and given the importance of uncertainty and risk in everyday life, it is unlikely there will be. Furthermore, when considering treatment strategies it may be a mistake to think of pathological gamblers as a homogeneous group. There are a number of models that have potential for helping the clinician tailor specific medications to individual patients. These include treatment strategies that address pathological gambling in terms of (1) neurotransmitter depletion/imbalance, (2) kindling, (3) withdrawal, (4) cravings, (5) comorbidity and (6) subtyping.

### Neurotransmitter depletion/imbalance

Chronic cocaine use causes a dopamine deficiency, which has been thought to be the basis for acute cravings and prolonged anhedonia and anergia (Dackis, Gold, Davies & Sweeney, 1985; Washton, 1989). Strategies for treating cocaine users have concentrated on a number of dopaminergic agents, with mixed results. These have included amantadine, bromocriptine, pergoline, methylphenidate, L-dopa, mazindole, buproprion, and flupenthixol (Kleber, 1995). Chronic use of marijuana or nicotine also causes a depletion of dopamine. The only FDA approved anti-smoking medication other than nicotine replacement therapies is the dopaminergic antidepressant buproprion (Wellbutrin, marketed for this purpose as Zyban).

While prolonged use or exposure to an addictive substance or activity may cause depletion of dopamine or other neurotransmitters, it is also possible that the deficiency occurred first and creates the vulnerability for addiction. This primary deficiency could be related to genetic factors, early trauma or other environmental conditions, or another disorder such as depression. Erickson (1996) and others have hypothesized that the various forms of substance dependence are associated with different neurotransmitter deficiencies. An alcohol-dependent individual, according to the theory, lacks normal concentrations of one or more neurotransmitters in the median forebrain bundle (the so-called "pleasure center") of the brain. They drink to feel "normal," meaning to elevate their neurotransmitters to

normal levels. Preliminary research on pathological gambling has found deficits in the serotonergic, noradrenergic, and dopaminergic systems.

Pharmacological challenge tests stimulate neuroendocrine and behavioral responses in patients and control groups as a means of assessing 5-HT receptor function (Murphy, Mueller, Garrick & Aulakh, 1986). Investigators have found both blunted and enhanced response to serotonergic probes in pathological gamblers. Moreno et al. (1991) reported blunted prolactin response to intravenous clomipramine suggesting serotonergic receptor *hyposensitivity.* On the other hand, DeCaria et al. (1996; 1998a) found an enhanced prolactin response following oral administration of a single dose of m-CPP, a metabolite of trazodone with high affinity for serotonin receptors. Their results suggest serotonin receptor *hypersensitivity.* This may represent decreased serotonin availability and/or release associated with subsequent up-regulation of the serotonergic postsynaptic receptors. DeCaria et al. (1998a) also found that m-CPP stimulated a "high" in their subjects that resembled their experience while gambling. A similar finding has been found in subjects with trichotillomania (Stein, Hollander, Cohen, Simeon & Aronowitz, 1995), alcohol dependence (Benkelfat et al., 1991; Krystal, Webb, Cooney, Kranzler & Charney, 1994), cocaine dependence (Buydens-Branchey & Branchey, 1993), and borderline personality disorder (Hollander et al., 1994).

Other studies that implicate serotonin have measured platelet MAO activity. This peripheral marker of serotonergic function was lower in pathological gamblers (Carrasco et al., 1994; Blanco et al., 1996). Decreased MAO activity has been correlated with high sensation-seeking behavior (Fowler, von Knorring & Oreland, 1980; Ward, Catts, Norman, Burrows & McConaghy, 1987). Carrasco's group found this correlation; Blanco's did not. The difference may be a function of their subject selection. However, no information is given about gambling histories or forms of gambling engaged in by either group.

A third way to examine serotonin activity is by measuring its metabolites in cerebrospinal fluid. Here the results are mixed. The metabolites 5-HT and 5-HIAA in the CSF of pathological gamblers were unchanged in two studies (Roy et al., 1988; Roy, De Jong & Linnoila, 1989; Bergh et al., 1997). However, when flow rates were corrected, Nordin and Eklundh (1999) found decreased rates of 5-HIAA in the CSF of male pathological gamblers.

The cited studies by Roy et al. (1988, 1989) and Bergh et al. (1997) did find evidence of increased noradrenergic activity. The former found the metabolite of noradrenaline, MHPG, increased in the CSF of pathological gamblers, while the latter confirmed this finding and also reported an increase in the concentration of noradrenaline. Further evidence of noradrenaline involvement in pathological gambling comes from DeCaria et al. (1996, 1998a), who found increased growth hormone in response to oral clonidine (an alpha-2 receptor agonist) challenge.

The primary focus of the Bergh study, however, was dopamine function. The authors reported that concentrations of dopamine were lower in the CSF of pathological gamblers as compared with controls, but that levels of its metabolites, dihydroxyphenylacetic acid (DOPAC) and homovanillac acid (HVA), were higher. These findings suggest increased release of dopamine in the brain. The ratios between DOPAC or HVA and dopamine were significantly higher for the gamblers. This could be a consequence of their gambling or it could point to a prior dopamine deficiency that would make them vulnerable to a gambling addiction.

In the first genetic study of pathological gamblers, Comings et al. (1996) demonstrated that, compared with controls, gamblers were significantly more likely to have the A1 allele for the dopamine D2 receptor gene. The more severe the gambling pathology, the more likely they were to possess the abnormality. The authors emphasized that pathological gambling is not a single gene disorder, and that mutant genes are not disease-specific but, rather, associated with a spectrum of interrelated disorders. However, their significant findings could not be accounted for by comorbid conditions.

Parkinson's disease, which is caused by the loss of dopamine-producing neurons in the substantia nigra, and which is treated with dopamine agonists (pergolide, ropinirole) or replacement (levodopa), offers a natural opportunity for observing the role of this neurotransmitter. Iatrogenic pathological gambling has been reported in Parkinson's patients treated with the above-mentioned dopaminergic drugs (Molina et al., 2000; Seedat, Kesler, Niehaus & Stein, 2000; Gschwandtner, Aston, Renaud & Fuhr, 2001). The gambling behavior seems to coincide with the overuse of these medications and to cease when doses are reduced.

Goyer et al. (1999) presented the first positron emission tomography (PET) scans of pathological gamblers. They showed significant hypofrontality, which the authors correlated with deficits in attention and executive function elicited through cognitive testing. Findings of decreased D2-like indices consistent with a hyperdopaminergic state lend further support to a key role for this neurotransmitter.

Since serotonin has been implicated in the regulation of impulsivity and compulsivity, noradrenaline in the mediation of arousal and novelty seeking, and dopamine in reward and reward dependency, the above findings, albeit preliminary, are of significance. De Caria (personal communication, October 17, 2001 ) believes that all three neurotransmitters are involved in pathological gambling, but at different stages of the gambling cycle. Thus, anticipatory arousal may be linked to the noradrenergic system, the "high" of the actual gambling episode associated with the serotonergic system, and difficulties extinguishing the behavior under the aegis of the dopaminergic system.

**Kindling**

Kindling is a neurophysiological mechanism first described in animals by Goddard, McIntyre and Leech (1969). They found that a recurrent, subthreshold stimulus applied over time can produce a progressively exaggerated response, with long-term or permanent changes in brain function. Their experiment consisted of stimulation of the amygdala for one second or less a day at an intensity unlikely to effect electrical or behavioral change. After a few weeks, the stimulus would culminate in a major motor seizure. Once such seizures have developed, they can be evoked again months or years later even if the animal has had no further stimulation in the interim (Wada, Sato & Corcoran, 1974; Racine, 1978). Thus, the kindling process appears to involve permanent changes in neural excitability. After a sufficient number of amygdala-kindled seizures, spontaneity will develop (Wada et al., 1974) and the animal will continue to have full-blown, generalized convulsions in the absence of electrophysiological stimulation. Neuronal sensitization has applicability not only as a model of epilepsy but for learning and memory (Goddard et al., 1969; Goddard & Douglas, 1975). Kindling has been invoked to explain disorders characterized by episodic, progressive symptomatology, notably bipolar disorder (Ballenger & Post, 1978a, 1980) and addiction (Ballenger & Post, 1978b; Halikas, Kuhn, Carlson, Crea & Crosby, 1992; Adinoff, O'Neill & Ballenger, 1995; Berridge & Robinson, 1995).

Ballenger and Post (1978a, 1980) noted the similarity between kindling and the progression in manic-depressive disorder. They hypothesized that carbamazapine, an anticonvulsant found to block amygdala-kindled seizures in animals, could benefit patients who were manic-depressive. Dalby (1971, 1975) had earlier reviewed 2500 epileptic patients treated with carbamazepine, and found that half showed improvement in mood and behavior independent of its effect on seizure control. Limbic substrates had previously been implicated in the modulation of affect (Papez, 1937; Isaacson, 1974; see review in Post, Uhde, Putnam, Ballenger & Berrettini, 1982).

Ballenger and Post's hypothesis was correct, and the anticonvulsants carbamazepine (Tegretol) and valproate (Depakote) and more recently lamotrigine (Lamictal), gabapentin (Neurontin), and topiramate (Topamax) have proven themselves effective in the treatment of bipolar disorders, especially the soft spectrum, the mixed states and rapid cyclers, and the cases that fail to respond to lithium. The time course for mood stabilization is several weeks, suggesting that the mechanism of action is different from the rapid anticonvulsant effect of these drugs (Post et al., 1982; Post, 1990). However, stabilization of the limbic system may still be taking place.

Kraepelin (1921) was one of the first to observe that the interval between episodes of an affective disorder gets shorter as the disease progresses. A number of studies (Post, Rubinow & Ballenger, 1986; Tohen, Waterneax & Tsuang, 1990; see review in Post, 1990) have since documented the potential for the disorder to speed up in cycle frequency, severity of episodes, and rapidity of onset of individual episodes. Post (1990)

predicted, based on the kindling and sensitization model, that psychosocial precipitants or exogenous stressors would be more apparent in the initial episodes, but would then become less obvious until, with sufficient repetition, episodes become autonomous. The model also predicted that the effectiveness of pharmacotherapy would be a function of the course of the disorder, and, in fact, lithium is more effective in the earlier phases. If rapid cycling and mixed states develop, patients may become refractory to lithium carbonate.

Progression, then, in the bipolar disorders is characterized by (1) a progressively shorter interval between episodes, (2) increasingly greater severity of episodes, (3) decreasing need for an environmental event or trauma to trigger the episode (leading to "spontaneity"), and (4) decreasing effectiveness of medication. Unipolar depressions may follow a similar progressive course. This has lead to an aggressive approach to medication in which treatment is instituted early and maintenance medication is used prophylactically. Once medication is stopped it may not be effective when reinstated or may require an upward dosage adjustment.

Attempts to apply the kindling model to addiction have mainly focused on cocaine (Halikas et al., 1992) and alcohol dependence. Ballenger and Post (1978b) suggested that repeated episodes of alcohol withdrawal act as a limbic stimulus. Not only is there a lowering of the seizure threshold, so that there is an increase in occurrence of delirium tremens and in the severity of withdrawal symptoms, but they also hypothesized that the repeated experience of withdrawal could result in pathological behavior during periods of abstinence. Adinoff et al. (1995) reviewed the literature, and argued that repeated episodes of alcohol withdrawal result in a state of permanent limbic excitability that can lead to spontaneous withdrawal-like symptoms during periods of abstinence. These are experienced as anxiety and they are associated with urges or cravings to drink and are an important factor in relapse. Studies are cited in support of their hypothesis that it is not the chronic consumption of alcohol that determines the severity of cravings, but the frequency and severity of withdrawal episodes.

It would be important to determine whether part of the progressive nature of pathological gambling consists in increases in withdrawal symptoms, greater affective instability, and greater frequency and intensity of cravings. It would also be important to evaluate whether external stressors play a progressively diminished role, with seemingly autonomous episodes occurring later in the disorder. There are studies demonstrating that pathological gamblers become increasingly impulsive as the disorder progresses (Rugle & Rosenthal, 1993; Rugle, Rosenthal & Lesieur, 1996). Additional research, in particular, longitudinal studies, might provide data supporting aggressive treatment and the early use of medication as has been shown to be warranted for bipolar disorder.

**Withdrawal**

There are several studies that describe withdrawal symptoms in pathological gamblers (Wray & Dickerson, 1981; Meyer, 1989; Rosenthal & Lesieur, 1992). According to the survey by Rosenthal and Lesieur, (n=222), physical symptoms were prominent, including insomnia (50%), headache (36%), upset stomach or diarrhea (34%), physical weakness (27%), heart racing or palpitations (26%), shaking (19%), muscle aches or cramps (17%), difficulty breathing (13%), sweating (12%) and chills or fever (6.5%). None of these symptoms correlated with gender, type of gambling, extent of alcohol or drug use while gambling, or self-described alcohol or drug dependence. They did correlate with number of hours spent gambling, severity of the problem as measured by DSM-IV criteria, and presence of dissociation. However, these symptoms were self-limited. We have yet to find a gambler who needed to be medicated for their withdrawal symptoms.

## Cravings

With regard to cravings, pathological gamblers seem to fall into three groups. Some quickly put gambling behind them once they start dealing with whatever it is from which they had been trying to escape. From the beginning of treatment they experience no thoughts or urges to gamble. Others will have sporadic cravings in response to specific cues and when certain issues emerge in therapy. A third group of patients will have frequent and intense cravings with which they wrestle daily. Differences between the three groups are a topic for future research, as is the relationship between cravings and relapse to gambling.

The following four approaches to a pharmacotherapy of cravings seem worth exploring:

#### Drug hunger (and the use of substitution agents)

Substitution agents take away hunger by satisfying it (Dole & Nyswander, 1965). Accordingly, the experience of withdrawal is subjectively experienced as craving. This is also a dehydration-thirst model. A well-known substitution agent from the field of chemical dependency is methadone.

#### Blocking agents

These are compounds that block the excitement or pleasure of the addictive drug. The best known example is the opioid antagonist naltrexone. When the medication works, it seems to do so early, probably by reducing urges. It is not clear whether this is some direct pharmacological effect, or whether it is because patients know that the drug or behavior will not work for them and this knowledge psychologically reduces cravings. In general, addicted individuals sequestered as inpatients usually experience a rapid reduction in cravings (Margolin, Kosten & Avants, 1992). When released to an environment in which drugs are available, they frequently experience intense cravings and relapse.

Meyer and Mirin (1982) emphasized the role of perceived availability. Naltrexone makes the drug unavailable, not physically, but in terms of its effect. The result is a kind of "why bother?" One would expect that the blockade would have to be subjectively experienced; and that, therefore, one or more slips would need to occur as part of the learning process. Since one-trial learning is improbable, a number of episodes would be expected. This is at odds with the prior observation that naltrexone, when effective, works almost immediately to reduce cravings and use.

A drug that blocks the excitement of an addictive drug or activity would hold great promise for the treatment of pathological gambling. As described above, there are two single-case reports (Crockford & el-Guebaly, 1998; Kim, 1998) and two clinical trials (Kim & Grant, 2001; Kim et al., 2001a) pursuing this approach. Positive results are reported, but the studies involved small samples and a short duration of treatment. Kim (1998) also described a successful outcome for a compulsive shopper and the reduction of urges for a patient with kleptomania. He cites clinical reports on the treatment of a number of other impulse disorders, including the paraphilias, bulimia, trichotillomania, repetitive self-mutilation and obsessive-compulsive disorder. For most of these disorders naltrexone was not very effective.

"The thrill is gone!" This is the characteristic experience of the drug-addicted person on naltrexone. It is the absence of this excitement that the gambler in Kim's 1998 paper so clearly described. It would be important that any naltrexone study distinguish between action-seeking pathological gamblers and escape seekers. The majority of Kim's subjects were escape gamblers. One would anticipate a much more profound effect with the action seekers. At the same time, one can also predict even greater problems with compliance. Particularly for the sensation seekers, those whose whole manner of life revolves around the pursuit of strong sensations and excitement, a medication like naltrexone could result in profound upheaval and depression. The drug does block endogenous opioids. For example, runner's high, the joy and euphoria of long-distance running, is reduced by opioid antagonists (Janal, Colt, Clark & Glusman, 1984; see also Grossman et al., 1984; Daniel, Martin & Carter, 1992). The medication is known to cause dysphoria and depression in normal and addicted subjects (Mendelson, Ellingboe, Keuhnle & Mello, 1978; Hollister, Johnson, Boukhabza & Gillespie, 1981; Crowley, Wagner, Zerbe & Macdonald, 1985). Interestingly, Kim describes a lessening of depression (Kim et al., 2001a) in his primarily female, video and slot machine gamblers.

Another group of drugs that should be considered here are the beta blockers, of which the best known are propranolol (Inderal) and atenolol (Tenormin). By decreasing autonomic arousal they block many of the physical manifestations of excitement. Although beta blockers have been around for decades, we know of no cases in which they were administered to pathological gamblers. Any study of their effectiveness should make a distinction between action seekers and escape seekers.

#### An obsessive-compulsive model

Modell, Glaser, Cyr and Mountz (1992) have suggested that many of the aspects of craving in the alcohol dependent individual are similar to the thought patterns and behavior of patients with obsessive-compulsive disorder (OCD). These include recurrent and persistent thoughts about alcohol, an inability to resist these thoughts, a compulsive drive to consume alcohol, and a loss of control over that drive. They modified the Yale-Brown Obsessive Compulsive Scale to measure those aspects of craving in heavy drinkers. On this same premise, similar instruments have been developed for compulsive buying (Monahan, Black & Gabel, 1996), body dysmorphic disorder (Phillips et al., 1997), and pathological gambling (DeCaria et al., 1998a).

Based on the resemblance of cravings to OCD, one would expect that medications useful in the treatment of OCD would be able to control cravings for alcohol or drugs. This has not proven to be the case. However, some gamblers who have urges or thoughts about gambling appear to ruminate or obsess about it. Medication may not reduce the urges, but may make them manageable by eliminating these secondary ruminations.

#### Reduction of negative affect

A trigger or cue leads to an urge to gamble, which in turn may be followed by physiological symptoms that intensify the urge or desire, and which may be acted upon. Triggers are external and "associative" (things in the environment which remind one of gambling) or internal and psychological. Typical psychological triggers are feelings of helplessness, shame and guilt. Anger is often a secondary and mediating affect. Particularly difficult situations for the gambler are those that involve uncertainty or perceived expectations and demands that stimulate feelings of inadequacy.

Medications that reduce the intensity of negative affect, such as SSRIs and mood stabilizers, could interrupt the response sequence in one of two places. Either the affect will not trigger the craving, or the gambler may still have cravings but will be better able to resist them. The details of how this occurs are not entirely clear. While taking SSRIs, patients are better able to tolerate negative affects. This may be related to a general dampening of affect: they feel less. Or it may be due to some inhibition of associative pathways: they feel as intensely but react less.

## Comorbidity

#### Axis I disorders

##### *Mood disorders*

Comorbidity is the clearest indication for medicating pathological gamblers. Unlike alcoholics who, it is generally believed, are more apt to

drink in order to medicate anxiety (see review by Clark & Sayette, 1993), gamblers show a preponderance of mood disorders and attention deficit hyperactivity disorder. In this respect they most closely resemble cocaine addicts (Rounsaville et al., 1991; Mirin, Weiss, Griffin & Michael, 1991). Three studies of pathological gamblers utilizing structured interviews (McCormick, Russo, Ramirez & Taber, 1984; Linden, Pope & Jonas, 1986; Specker, Carlson, Edmonson, Johnson & Marcotte, 1996) found lifetime rates for major depression of 76%, 72%, and 70%, respectively.

In a population of male, inpatient gamblers, McCormick's group found that 32% were bipolar (6.5% bipolar I, 26% bipolar II). Linden and colleagues interviewed male GA members and found 24% with bipolar disorder. Specker et al. studied a population of outpatient gamblers, 40% of which were female, and a significant percentage of which were slot, video poker and pull-tab gamblers. They found that only 5% of this group were bipolar, but of the 70% with histories of major depression, the onset of the depression preceded the onset of problem gambling in two-thirds of their subjects. According to a general population survey done for the National Gambling Impact Study Commission (Gerstein, Volberg, Harwood & Christiansen, 1999), one-third of the pathological gamblers had had at least one manic episode and 20% to 29% had had a major depressive episode. This last study, it should be emphasized, was conducted on a nontreatment population. The authors concluded that the lifetime prevalence for major mood disorders was clearly higher for problem and pathological gamblers than for the general population. They also noted that it correlated with the severity of the gambling disorder. Becoña, del Carmen Lorenzo and Fuentes (1996) reported similar findings.

The association between bipolar disorder and pathological gambling should come as no surprise. Bipolar disorder is the Axis I disorder most commonly associated with substance abuse and dependence (Regier et al., 1990; Brady & Lydiard, 1992; Kessler et al., 1997; Strakowski & DelBello, 2000). Over half the individuals with bipolar disorder have problems at some time in their lives with substance abuse, especially alcoholism and cocaine abuse or dependence (Regier et al., 1990). Conversely 20% to 30% of treatment-seeking cocaine abusers met lifetime criteria for a bipolar spectrum disorder (Gawin & Kleber, 1986; Mirin, Weiss, Michael & Griffin, 1988; Nunes, Quitkin & Klein, 1989; Rounsaville et al., 1991). Research is needed to examine more closely the similarities between pathological gambling and cocaine abuse. For example, it is known that cocaine is most frequently used by cyclothymic and bipolar patients to intensify and lengthen their euphoric mania rather than to self-medicate depressive episodes (Weiss & Mirin, 1987; Weiss, Mirin, Griffin & Michael, 1988; Brady & Lydiard, 1992). It is not known whether this is true for gambling.

Just as stimulant intoxication can produce a syndrome indistinguishable from mania or hypomania, it is well known that pathological gambling can mimic criteria for bipolar disorder. It seems most reasonable to diagnose a primary mood disorder only if it occurs before the onset of pathological

gambling or during periods of remission. However, therapists faced with the dual diagnosis patient do not usually have the luxury of waiting for periods of remission. Family history is important.

Adding to the complexity of diagnosis and treatment may be comorbid substance abuse and dependence in the gambler (50% lifetime prevalence according to Ramirez, McCormick, Russo & Taber, 1984; Linden et al., 1986; Lesieur & Blume, 1991a) and the likelihood of spectrum and more subtle mood disturbances contributing to the gambling problem. According to Akiskal (1987; Akiskal & Mallaya, 1987), the soft spectrum bipolar disorders, including cyclothymia and bipolar II, are several times more common than the traditional bipolar I. At least some researchers (Akiskal, 1992; Marlowe et al., 1995) believe that substance abusers, perhaps especially those dependent on cocaine, are more likely to be self-medicating for subsyndromal cyclothymic or dysthymic symptomatology than for major episodes.

There is little information available about the treatment of pathological gamblers with comorbid bipolar disorder. We cited a case series on the successful use of lithium with bipolar gamblers (Moskowitz, 1980) and a controlled trial of lithium and valproate (Pallanti et al., 2002). In the latter study, as in most clinical trials of pathological gamblers, anyone with bipolar disorder was excluded. It should be noted that the DSM-IV criteria for pathological gambling have a partial exclusion for gambling which only occurs during a manic episode and, in the clinician's judgment, is better explained by the latter disorder. This has been somewhat controversial as there was no research to justify its addition to the criteria, and no subsequent studies in support of its retention.

One can reasonably assume that patients with bipolar disorder who are pathological gamblers will require more hospitalizations and do less well in treatment than those who are not gamblers, and that pathological gamblers who are bipolar have a worse prognosis than those who are not bipolar. But again there is no data to support either of these statements, and there is much about the relationship between the two disorders that we do not know.

Noted at the beginning of this section were significant rates of depression among pathological gamblers. That data was obtained from treatment populations, where one would expect to find greater comorbidity. Alcoholics (Helzer & Pryzbeck, 1988), opiate addicts (Rounsaville & Kleber, 1985; Brooner, King, Kidorf, Schmidt & Bigelow, 1997), and cocaine abusers (Rounsaville et al., 1991; Carroll & Rounsaville, 1992) who have symptoms of depression are more likely to seek treatment. A regularly asked question has to do with whether the depression is primary or secondary. In the author's experience, it is frequently both. Individuals may gamble to self-medicate chronic dysphoria or a primary depression, but the consequences of their gambling cause an acute, secondary depression.

The depression of the pathological gambler in outpatient or inpatient therapy is often masked. The patient may appear to be getting better and not show overt signs of being depressed, but psychological testing will reveal a surprising degree of depression. There may be several reasons for this. Many gamblers have learned how to "act normal." They may be very good at figuring out what other people want or expect from them in order to be accepted. Or they may be so desperate to believe they are better that they deceive themselves. This is the "wishing will make it so" type of thinking that led them to believe they could win back gambling losses and solve all their problems by continuing to gamble. Confronting these deceptions and self-deceptions is an important part of therapy. All too often, however, the depression goes unrecognized and, therefore, untreated. Hand (1998) has made a similar observation. Many of the pathological gamblers they see in Germany are not aware they are depressed.

***Attention deficit hyperactivity disorder***

Another Axis I disorder showing significant comorbidity with pathological gambling is attention deficit hyperactivity disorder (ADHD) (Carlton et al., 1987; Carlton & Manowitz, 1994; Rugle & Melamed, 1993; Castellani & Rugle, 1995; Specker, Carlson, Christenson & Marcotte, 1995; Littman-Sharp & Jain, 2000). This research parallels reports of ADHD in people with other addictions (Rounsaville et al., 1991; Wilens, Biederman, Spencer & Frances, 1994; McCance-Katz, Leal & Schottenfeld, 1995). Rugle (1995) conducted structured interviews on 60 inpatient male pathological gamblers. Using Wender's (1995) narrow criteria, 34% of her sample was diagnosed with ADHD. When broader criteria were used, as Wender recommends when reliable collateral criteria are not available, the percentage increased to 48%. Ozga and Brown (2000) found that 32% of 50 (25 male, 25 female) VLT/slot machine pathological gamblers met the Conners' criteria (Conners, Erhardt & Sparrow, 1998) for adult ADHD. They had higher scores on inattention than on hyperactivity or impulsivity. Those with ADHD showed greater gambling severity. Specker et al. (1995) conducted structured interviews on 40 pathological gamblers (25 male, 15 female) from an outpatient treatment program. Attention deficit disorder was diagnosed in 20% of the gamblers while another 18% missed threshold criteria by only one item. ADD was more common in male gamblers, but the gender difference was not significant.

Research comparing pathological gamblers to substance abusers found gamblers to be significantly more impulsive, both cognitively and behaviorally (Castellani & Rugle, 1995). The gamblers scored in the normal range for excitement seeking, thus it appears that they were more likely to engage in risk-taking behavior as a result of a lack of planning and forethought rather than from any conscious seeking out of exciting or risky situations. The gamblers also scored significantly lower than the alcoholics or cocaine addicts on the NEO Personality Inventory Conscientiousness Scale, reflecting their inability to organize, plan, and follow through on goals.

The ADHD gambler's description of how he or she uses gambling to self-medicate is similar to that of the cocaine abuser with comorbid ADHD. At least in the beginning, gambling focuses (hyperfocuses) their attention, allowing them to slow down, concentrate and feel normal. It alleviates boredom and restlessness. In addition, it offers the opportunity for spectacular success (the big win), which is thought to provide recognition and self-esteem. The ADHD gambler often has a history of failure, and believes that nothing he or she does is good enough or is ever enough. The simplicity and polarity of the win/lose orientation of gambling also offers a way to organize one's life, seeming to bring clarity, structure, and a solution to problems.

As one would expect, ADHD significantly complicates the life of the pathological gambler, and unless recognized and treated, worsens prognosis. The ADHD gambler may be particularly skillful at secrecy and deception, having learned early in life how to cover up attention problems. He or she has a strong sense of shame at feeling different, inadequate, and stupid; has had only limited success following traditional paths to achievement; and often feels fraudulent even when successful. Gamblers with ADHD have difficulty making connections between what they do and why they do it. In treatment, they are often forgetful, impulsive and self-destructive. They frequently have difficulty setting and adhering to goals. ADHD gamblers typically have difficulty learning from experience and, in particular, connecting cause with effect. Their attention problems interfere with their ability to handle cravings, as it is difficult for them to direct their attention away from these high intensity but unwanted thoughts. A strong case can be made for the use of medication in treating the ADHD pathological gambler. However, they may like their hyperactivity and be reluctant to give it up. For all the reasons just mentioned, one can anticipate problems with compliance.

***Axis I comorbidity: Additional concerns***

It appears that mood disorders, both unipolar and bipolar, substance abuse (particularly alcohol and cocaine), and attention deficit hyperactivity disorder play a significant role in the presentation of pathological gambling. While drug studies deliberately try to exclude these dually diagnosed patients in order to treat the "pure gambler," the clinician in the field has no such option. In fact, medication is most often used to treat comorbidity. There is a precedent for this from the chemical dependency field. Studies have shown that cocaine abusers with coexisting major depression, attention deficit disorder, and bipolar disorder have done well when treated, respectively, with antidepressants, stimulant medications, and mood stabilizers (Weiss, Pope & Mirin, 1985; Gawin & Kleber, 1986; Ziednis & Kosten, 1991).

The key is proper diagnosis. Weiss and Collins (1992) have reviewed some of the problems this has posed for the chemical dependency field. Structured interviews, they note, have improved reliability of diagnosis, but even structured interviews have been subject to criticism. "Some studies

of the test-retest reliability of these instruments have shown only moderate short-term and long-term concordance levels in their ability to diagnose lifetime psychiatric disorders (p. 97)." A particular difficulty has to do with a lack of agreement about the length of time an individual has to be drug free before another psychiatric disorder can be diagnosed. Some authors, they observe, have suggested that alcoholics need two weeks of abstinence from drinking before a coexisting diagnosis of major depression can be made, whereas other researchers have recommended an abstinence period of three months before making the diagnosis. Pathological gamblers admitted to an inpatient facility following a binge or prolonged gambling can have psychiatric symptoms which mimic a large number of psychiatric disorders. There are no studies utilizing serial psychological testing or repeat interviews to guide us as to when we should be evaluating comorbid disorders.

In addition to assessing the existence of a comorbid disorder and, if present, whether it is primary or secondary, is the daunting task of untangling multiple disorders. As difficult as it can be to distinguish between bipolar disorder and ADHD, a very real possibility, especially in the multi-impulsive and often multiply addicted pathological gambler, is that both are present. Winokur, Coryell, Endicott & Akiskal (1993) found that adults with bipolar disorder reported much higher rates of childhood ADHD symptoms than did adults with unipolar depression. West, McElroy, Strakowski, Keck & McConville (1995) noted that 57% of patients with adolescent mania met criteria for comorbid ADHD. In a longitudinal study, Biederman et al. (1996) found that bipolar disorder was present at baseline for 11% of children with ADHD, and that another 12% met criteria four years later. This has led these authors to suggest that ADHD may be a risk factor for bipolar disorder. Since pathological gambling is associated with both bipolar disorder and ADHD, one should expect to see patients in which all three are diagnosed and need to be treated. This has not been mentioned in the literature on pathological gambling.

#### Axis II disorders

Prevalence rates for comorbid personality disorder in pathological gamblers vary from 25% to 93%. Blaszczynski and Steel (1998) administered the Personality Disorder Questionnaire-Revised to 82 treatment-seeking pathological gamblers (73% male, 27% female). They found that 76 (93%) met diagnostic criteria for at least one personality disorder. Multiple, overlapping diagnoses were the rule. The majority of the gamblers had cluster B personality disorders, with particularly high rates of borderline (70%), histrionic (66%), and narcissistic (57%) personality disorders. High levels of impulsivity and affective instability were found in the subjects with these diagnoses. The rate of antisocial personality disorder among the sample was 29%.

Kruedelbach and Walker (2000) examined male inpatient gamblers and found that 39% met criteria for a personality disorder. Of those, 67 of 79 (85%) had cluster B, 13% had cluster C, none had cluster A. Again, most

of the patients had more than one Axis II disorder, although only five of 79 had a mixed cluster (for example, B and C). Most prominent was narcissistic personality disorder. Thirty-five percent were so diagnosed, and an additional 53% were described as having significant narcissistic features. Ten percent met criteria for antisocial personality disorder. All subjects were evaluated by structured interview (SCID-II) during a five-day assessment period at the beginning of treatment.

Specker et al. (1996) conducted structured interviews on 40 pathological gamblers (25 female, 15 male) seeking outpatient treatment in Minnesota. Only 25% met criteria for a personality disorder (17.5% cluster C, 5% cluster B, 5% cluster A). Avoidant personality disorder was two and a half times more common than any other Axis II disorder. Noteworthy is the difference in demographics and type of gambling reflected in these last two studies. In the Specker et al. study, the majority of subjects were female and there was a preponderance of slot, video poker, and pull-tab gamblers, as compared to the more traditional male gamblers examined by Kruedelbach and Walker (2000). This conforms to Lesieur's (1988) subtyping of gamblers into action seekers and escape seekers,and the clinical impression that action-seeking male gamblers, who play traditional games (competitive, skill-based), are more likely cluster B (narcissistic, some antisocial) while escape-seeking female gamblers, who play luck-based, less directly competitive games, are more likely cluster C (avoidant, dependent). Gender differences are found across the personality disorders, with avoidant and dependent personalities being diagnosed more frequently in women, while narcissistic and antisocial personality disorders are more frequently diagnosed in men (Stone, 1993).

Gitlin's (1995) comprehensive review of the pharmacotherapy of personality disorders makes it clear that there are no medications for specific personality disorders. Instead, medication is used to treat symptom clusters within or across disorders. A model with great utility (Siever & Davis, 1991) proposes four dimensions or symptom clusters: cognitive/perceptual organization, impulsivity/aggression, affective instability, and anxiety/inhibition. Thus, a pathological gambler with a comorbid narcissistic personality disorder might be treated with an SSRI if mood lability, depression, and rejection sensitivity are dominant symptoms (affective instability), but with an atypical antipsychotic or mood stabilizer if there is prominent acting out behavior (impulsivity/aggression). Similarly, a patient with an avoidant or dependent personality might be treated with an SSRI for depression, social phobia, or panic disorder (anxiety/inhibition).

It is again important to note difficulties in diagnosis. Each of the three studies looking at the prevalence of personality disorders (Specker et al., 1996; Blaszczynski & Steel, 1998; Kruedelbach & Walker, 2000) involved pathological gamblers in or near the beginning of treatment. Although personality disorders are, by definition, chronic and enduring patterns of maladaptive behavior, several studies on substance dependence (Blume, 1989; Nace, 1989; Pettinati, 1990; Pettinati, Jensen & Tracy, 1991) have noted their apparent instability over time. Pettinati and her colleagues

(1991) reported that approximately 53% of substance abusers who were diagnosed with a personality disorder two weeks into treatment for substance abuse no longer met criteria for any Axis II disorder one year post-treatment. Serial evaluations of pathological gamblers at various points in treatment and in recovery are needed to see how the diagnosis of a personality disorder is affected.

**Subtyping**

In the long run, the most useful approach to the pharmacotherapy of pathological gambling will be one that does not view it as a homogeneous disorder, but instead tailors treatment to subgroups and patient characteristics. There have been a number of attempts to subtype pathological gamblers (Bergler, 1957; Moran, 1970; Livingston, 1974; Graham & Lowenfeld, 1986; McCormick & Taber, 1987; McCormick, 1987; Lesieur, 1988; Blaszczynski, McConaghy & Frankova, 1990; Gonzalez-Ibanez, Saldana, Jiminez Murcia & Vallejo, 1995; Blaszczynski, Steel & McConaghy, 1997; Rosenthal & Rugle, 1998; Kruedelbach & Walker, 2000; Blaszczynski, 2000). The one that has been most useful to clinicians has been Lesieur's (1988) division into action seekers and escape seekers (see also Lesieur & Blume, 1991b).

According to Lesieur (Lesieur & Rosenthal, 1993), escape seekers say they are gambling to achieve numbness and a sense of oblivion. They relate their gambling to relationship problems and the need to anesthetize painful affects. Dissociation while gambling may aid in their escape seeking. They are attracted to repetitive, even monotonous games, which they play alone. They tend not to take a strategic approach to gambling, do not play directly competitive games, and typically do not boast when they win. Escape seekers are more apt to be female and start gambling at a later age (after forming their adult identities) than their male counterparts. Their games of choice are slot and video poker machines, bingo and lotteries.

Action seekers, who are more likely to be male, look for big payoffs, play competitive, skill-oriented forms of gambling, and speak of the "action" or excitement of gambling. They have a need to impress others; GA refers to their "big shot" mentality. Gambling for them often begins with an early winning phase, and a memorable, early "big win." Action seekers typically favor the traditional forms of gambling: cards and casino table games, sports betting and horse race wagering. They are more likely to "handicap," "count cards," or be "percentage players." Action seekers begin gambling at an earlier age, often in pre-adolescence, and they have an earlier onset of problems than the escape seekers. Action seekers also have gambling careers of longer duration than those of escape seekers, whose careers tend to be telescoped. Lesieur's typology has obvious similarities to the ones proposed by Cloninger (1983) and Babor et al. (1992) for alcoholics.

Several other approaches seem to support Lesieur's classification.

McCormick (1987) describes two types of male gamblers, the "recurringly depressed" and the "chronically understimulated." The latter is hyperactive, gregarious, and narcissistic, has a need to relieve boredom and a low frustration tolerance, and shows high novelty seeking. The recurringly depressed type often has a history of trauma. Gambling provides an escape from the depressed state. Blaszczynski et al. (1990) postulate three subtypes: boredom-prone, depressed, and a third "mixed" group.

Kruedelbach and Walker (2000) surveyed inpatient, predominantly male gamblers and described two categories based on gambling preference. Type I gamblers prefer card playing, race track wagering, sports betting, and stock market gambling. Type II gamblers prefer machine gambling. They found that type I gamblers began gambling at an earlier age, had a longer gambling career, and scored higher on narcissism/power, extroversion, and excitement seeking than the type II gamblers. The type II gamblers, on the other hand, were higher on seeking escape from negative emotions and dissociation while gambling than the type I gamblers. Kruedelbach and Walker's choice of names will remind the reader of Cloninger's (1983) distinction between early and late onset alcoholism, although unfortunately the names have been reversed. Cloninger used "type I" to represent late onset alcoholics, and "type II" for the early onset alcoholics. Other than the confusing nomenclature, there are many similarities.

Lending further support to this typology, Comings et al. (1996) found two types of female pathological gamblers. The women not carrying the abnormal D2 dopamine receptor gene tended to be late onset gamblers with depression. The women carrying the genetic predisposition for pathological gambling started gambling, and developing problems from gambling, at an early age. Depression was not a prominent feature. Further analysis is needed to determine what kind of gambling they prefer, and if they can be characterized as action seeking.

A different, more clinical typology was suggested by Rosenthal and Rugle (1998), who related dominant comorbid diagnosis and its associated features to the patient's style or pattern of gambling behavior. They looked at reasons and motives for gambling, what triggered gambling episodes, progression, treatment needs and prognosis. They considered 11 possible subtypes: ADHD, antisocial, bipolar, dependent-avoidant, depressive, masochistic, multi-impulsive, narcissistic, neurotic, obsessive-compulsive and reactive. They found that many of these categories could easily be recognized, with distinct patterns of gambling and very different clinical needs. They encountered problems with overlap, particularly in patients with multiple diagnoses and in those who could not be easily diagnosed. Their findings were preliminary and a formal study still needs to be conducted.

Kim believes that, in evaluating naltrexone response, an attempt should be made to separate gamblers according to the frequency and intensity of

their cravings (Kim et al., 2001a). This might yield up to four subgroups, defined by the presence of mild, moderate or severe cravings, or their absence altogether. Kim criticizes the naltrexone treatment studies that enrolled alcoholics regardless of the presence or absence of cravings. His point is well taken, and perhaps should be taken even further. The strength of gambling cravings may be an important prognostic factor, to be taken account of in all treatment matching and outcome studies.

Potentially useful are attempts to correlate specific clinical syndromes with deficits in various neurotransmitter systems. Among the more difficult to treat pathological gamblers, clinicians may encounter the following three subtypes:

#### The multi-compulsive

In addition to gambling, these patients may abuse drugs or eat or masturbate compulsively, or be addicted to sex. In other words, they engage in multiple compulsive or addictive behaviors. However, the defining characteristic of these individuals is that they do most activities to excess, whether it be dieting, exercising, buying shoes or sunglasses, playing golf, having a relationship. It is as if they have "no brakes," which is how some of them have described it. One might infer that they have low levels of serotonin and would respond to an SSRI.

#### The sensation seeker

Not all pathological gamblers are high sensation-seekers, but when type of game is taken into account, such a subgroup exists. Casino and racetrack gamblers score higher on sensation seeking than the general population (Coventry & Brown, 1993). Video poker machine gamblers tend to be low sensation-seekers. The difference seems to conform to the distinction between competitive, skill-based games and forms of gambling that are noncompetitive and primarily involve luck (Adkins, Kruedelbach, Toohig & Rugle, 1988). When pathological gamblers are grouped together, the high sensation-seekers and the low sensation-seekers cancel each other out. Some of these high sensation-seekers may be categorized as "adrenalin junkies." At its extreme are those who engage in danger seeking and compulsory, excitatory violence. Solursh (1988, 1989) found this to be quite common in Vietnam combat veterans with posttraumatic stress disorder; he named it "combat addiction." Van der Kolk, Greenberg, Boyd & Krystal (1985) refer to it as an "addiction to trauma," and postulate a model based on catecholamine depletion. Medications which raise levels of dopamine and norepinephrine, and which therefore might be expected to benefit this subgroup of gamblers, include the MAO inhibitors, venlafaxine and buproprion.

#### The apathetic gambler

These individuals may be gambling because they do not believe they have anything else in their lives. They lack goals and ambition, and are

particularly difficult to treat. Their "amotivational syndrome" has been related to low levels of dopamine (Campbell & Duffy, 1997). Furthermore, it has been observed that for many pathological gamblers procrastination is a common and incapacitating symptom. While procrastination is a complex problem, apathy and lack of motivation are among the factors involved. Buproprion may be the medication of choice for this subgroup.

Comings et al. (1996) have implicated deficits in the dopaminergic system in pathological gamblers consistent with earlier findings in other impulse control disorders. Pathological gamblers, as compared to controls, were found to have a higher prevalence of the A1 allele of the DRD2 gene. This suggests a significant decrease in the number of dopamine D2 receptors, and is consistent with Bergh et al. (1997) finding a decrease in dopamine with increases in metabolites DOPAC and HVA in the cerebrospinal fluid of pathological gamblers. More recently, Comings et al. (2001) have shown that dopamine, serotonin and norepinephrine genes are about equally involved in pathological gambling. Other genes, yet to be tested, may also be involved in this complex, polygenic disorder. Genetic profiling may be of use in predicting drug response. Winsberg and Comings (1999) showed that alleles at the dopamine transporter gene (DAT1, SLC6A3) predicted methylphenidate response in children with ADHD, and Kim et al. (2000) reported that alleles at the serotonin gene (HTT, SLC6A4) significantly predicted response to serotonin reuptake inhibitors in individuals with depression. Genetic profiling may assist in the identification of genetic subtypes and, particularly when matched with clinical subtypes or syndromes, may result in far more effective decisions about medication.

## Summary

For clinicians and researchers, an important factor in choice of medication has been the similarity between pathological gambling and other disorders. Most often, comparisons are made with substance dependence. Hollander (Hollander & Wong, 1995; Hollander & Benzaquen, 1996), on the other hand, places pathological gambling in an obsessive-compulsive spectrum, a group of disorders believed to share symptomatology, neurobiology, and treatment response with OCD. This assumption has led him to use clomipramine (Hollander et al., 1992) and fluvoxamine (Hollander, 1998; Hollander et al., 1998; Hollander et al., 2000) with pathological gamblers. A third treatment model is based on pathological gambling's categorization as a disorder of impulse control. Kim (1998) believes that, for this group of disorders, the primary problem is uncontrolled urges, and the pattern of expression for those urges may dictate the descriptive diagnosis, although it is actually secondary. According to his formulation, resolution of the urges will bring about resolution of the rest of the behavioral symptoms. This led him to use naltrexone (Kim, 1998; Kim et al., 2001a) with pathological gamblers and to treat other impulse disorders. Still another approach is based on the clinical observation that pathological gamblers are often attempting to self-medicate depression or control changes in mood. Of the attempts to treat

pathological gamblers with mood stabilizers, the earliest published account (Moskowitz, 1980) was with patients with bipolar disorder. McElroy et al. (1996) has even postulated that impulse control disorders are part of a bipolar spectrum.

Comorbidity between pathological gambling, bipolar disorder, and substance dependence (cocaine, alcohol), and the similarities between these disorders, suggests the possible relevance of kindling for pathological gambling. Such gambling is progressive, with an increase over time in its severity and the consequences from the behavior, with an associated increase in feelings of shame, guilt and depression. What has not been studied is whether the progressive course of pathological gambling includes an increase in withdrawal symptoms, affective instability, and the frequency and intensity of cravings, and whether external stressors play a progressively diminished role with seemingly autonomous episodes occurring later in the disorder. What are needed here are studies comparing gamblers from the early, middle, and later phases of the disorder. The presence of kindling would make a strong case for earlier and more aggressive use of medication, and for its long-term use to prevent future relapses.

**Current approaches**

Comorbidity is the clearest indication for using medication with pathological gamblers. They have high rates of depression, bipolar disorder, and attention deficit hyperactivity disorder. These may be severe or subtle (soft spectrum or subthreshold), and the affective disorders may be primary, secondary, or, in the case of depression, both. However, comorbid diagnoses can be difficult to make. Several disorders may be present, and there is little known about the interrelationships between pathological gambling and substance dependence, bipolar disorder, and the personality disorders. It is known that a gambling binge can mimic all the criteria for bipolar disorder, and that gamblers admitted to treatment can present not only with symptoms of withdrawal but with symptoms that can be confused with almost every psychiatric disorder. We do not know how long to wait before diagnosing a comorbid disorder. Research utilizing serial testing and repeat interviews is greatly needed. It is most helpful to observe the patient during periods of remission from gambling and to obtain an independent history from family members, but for the therapist faced with the dual diagnosis patient this is not always possible.

The presence and type of comorbid personality disorder has been found to vary with geographical region, accessibility of forms of gambling, and the point in treatment at which the gamblers were evaluated. Anecdotal clinical reports support study findings of predominantly cluster B personality disorders, especially narcissistic and antisocial, in the action-seeking, male gamblers, and cluster C personality disorders, especially avoidant and dependent, in the escape-seeking, female gamblers. However, there are no medications for specific personality disorders (Gitlin, 1995). Pharmacotherapy is aimed at symptom clusters within or

across disorders. Therefore, a second indication for medicating pathological gamblers is to diminish or treat specific symptoms or traits, such as impulsivity, or target symptom clusters.

Pathological gamblers seem to have particular difficulty with feelings of shame, guilt, helplessness, and depression. Anger is often a secondary response. A third indication for medicating gamblers is to make these negative affects more tolerable. The SSRIs seem to accomplish this through a general dampening of affect; the patient feels less. However, a second mechanism involving some inhibition of associative pathways may also be involved, so that the patient feels as intently but reacts less. Pathological gamblers typically are trying to avoid feelings or situations they view as intolerable (Rosenthal & Rugle, 1994), and they believe that escape is possible. Gambling, of course, is one such method of escape. It is noteworthy that at GA meetings one rarely if ever hears about serenity. For alcoholics, the opposite is true; serenity is what they are primarily striving for in recovery. Perhaps gamblers do not think such a state of mind is possible, or perhaps for competitive, driven individuals, it represents complacency or defeat. However, clinicians have been impressed by the "serenity" demonstrated by patients on SSRIs. The patients say they are still aware of the negative situations in their lives, but are more tolerant of them.

Finally, a fourth indication for the medication of gamblers is to reduce urges or cravings to gamble. The research on naltrexone (Kim et al., 2001a) is most promising, particularly when the medication is reserved for those gamblers with moderate to severe cravings. To date, however, there is a paucity of research on gambling cravings. We do not know what percentage of gamblers presenting for treatment have had and continue to have frequent or intense cravings, nor do we know what the relationship is between cravings and gambling behavior. There is an assumption that the gambler's cravings are similar if not identical to those experienced by the alcohol or cocaine dependent patient. While Potenza (2001) finds some support for this, it is important to remember that even in the chemical dependency field cravings are a troublesome phenomenon, highly subjective and with no agreed upon method of measurement.

In summary, there are four current approaches to the pharmacotherapy of pathological gambling. Medication is used to: (1) treat comorbidity, (2) target symptoms, traits or specific symptom clusters, (3) reduce negative affects, and (4) reduce cravings. Problems with compliance are significant, but are reduced when medications are used in conjunction with psychotherapy and other psychosocial approaches.

**Future approaches**

Although clinical trials usually view pathological gambling as a homogeneous disorder, future approaches will tailor treatment to subgroups and individual patient characteristics. Of the various attempts to subtype pathological gamblers, the most useful to date has been

Lesieur's distinction between action seekers and escape seekers (Lesieur, 1988; Lesieur & Blume, 1991b). This distinction should be considered in evaluating treatment outcomes and in looking at clinical interventions. For example, naltrexone will probably have a more profound effect on high sensation-seeking action gamblers where the medication will block the excitement of gambling but may also potentially cause dysphoria or depression as well as greater problems with compliance.

One would also expect these two subgroups to differ with regard to comorbidity and predominant symptom clusters, symptoms and traits. Thus a study conducted in a part of the country which has primarily slot and video machine gamblers, pull-tabs and bingo, would draw a population requiring one type of clinical intervention, while a treatment program in a different geographical location, or in a particular setting such as a veteran's hospital, would attract a different type of gambler. The latter might have a preponderance of male gamblers who are card players, sports and racetrack bettors, and clinicians might, therefore, expect greater efficacy from medications which address aggression, hyperactivity, and impulsivity. In the former group one might anticipate better results from medications that target depression, rejection sensitivity, and social phobia.

The distinction between action seekers and escape seekers also has relevance in evaluating other kinds of treatment modalities. For example, escape-seeking, female gamblers often do not do well in male-dominated GA meetings, and have particular difficulty with the acceptance of powerlessness required in working the first step. They find nothing therapeutic in this, since they have felt powerless all their lives. They do much better in programs that emphasize self-assertion and empowerment, while the opposite may be true for the action-seeking, male gambler.

Other attempts at subtyping, with obvious clinical implications, are typologies based on comorbid diagnoses, severity of cravings, and attempts to match neurotransmitter deficits with specific clinical syndromes. To illustrate the latter, we described multi-compulsive, high sensation-seeking, and apathetic/unmotivated subtypes. Such an approach may soon be combined with genetic profiling. Comings et al. (2001) found dopamine, serotonin, and norepinephrine to be about equally involved in pathological gambling. There are studies of other disorders; for example, ADHD (Winsberg & Comings, 1999) and major depression (Kim et al., 2000), demonstrating the usefulness of genetic profiling in predicting drug response for specific individuals and populations. The matching of genetic profiling with clinical subtypes may result in more effective decisions about medication, and may be a major step toward providing the best possible treatment for the individual patient.

## References

**Adinoff, B., O'Neill, K. & Ballenger, J.C. (1995).**

Alcohol withdrawal and limbic kindling: A hypothesis of relapse. *American Journal on Addictions, 4* (1), 5–17.

**Adkins, B.J., Kruedelbach, N.G., Toohig, T.M. & Rugle, L.R. (1988).**
The relationship of gaming preference to MMPI personality variables. In W.R. Eadington (Ed.), *Gambling Research, Volume 5: Research on Pathological Gambling* (pp. 180–192). Reno: Bureau of Business and Economic Research, University of Nevada, Reno.

**Akiskal, H.S. (1987).**
The milder spectrum of bipolar disorders: Diagnostic, characterologic and pharmacologic aspects. *Psychiatric Annals, 17* (1), 32–37.

**Akiskal, H.S. (1992).**
Delineating irritable and hyperthymic variants of the cyclothymictemperament. *Journal of Personality Disorders, 6* (4), 326–342.

**Akiskal, H.S. & Mallya, G. (1987).**
Criteria for the "soft" bipolar spectrum: Treatment implications. *Psychopharmacology Bulletin, 23* (1), 68–73.

**Babor, T.F., Hofmann, M., DelBoca, F.K., Hesselbrock, V., Meyer, R.E., Dolinsky, Z.S., et al. (1992).**
Types of alcoholics, I: Evidence for an empirically derived typology based on indicators of vulnerability and severity. *Archives of General Psychiatry, 49* (8), 599–608.

**Ballenger, J.C. & Post, R.M. (1978a).**
Therapeutic effects of carbamazepine in affective illness: A preliminary report. *Communications in Psychopharmacology, 2,* 159–175.

**Ballenger, J.C. & Post, R.M. (1978b).**
Kindling as a model for alcohol withdrawal syndromes. *British Journal of Psychiatry, 133* (July), 1–14.

**Ballenger, J.C. & Post, R.M. (1980).**
Carbamazepine in manic-depressive illness: A new treatment. *American Journal of Psychiatry, 137* (7), 782–790.

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

**Benkelfat, C., Murphy, D.L., Hill, J.L., George, D.T., Nutt, D. & Linnoila, M. (1991).**
Ethanol-like properties of the serotonergic partial agonist m-chlorophenylpiperazine in chronic alcoholic patients [Letter]. *Archives of General Psychiatry* , *48* (4), 383.

**Bergh, C. Eklund, T., Sodersten, P. & Nordin, C. (1997).**

Altered dopamine function in pathological gambling. *Psychological Medicine, 27* (2), 473–475.

**Bergler, E. (1957).**
*The Psychology of Gambling.* New York: Hill and Wang.

**Berridge, K.C. & Robinson, T.E. (1995).**
The mind of an addicted brain: Neural sensitization of wanting versus liking. *Current Directions in Psychological Science, 4* (3), 71–76.

**Biederman, J., Faraone, S., Mick, E., Wozniak, J., Chen, L., Ouellette, C., et al. (1996).**
Attention-deficit hyperactivity disorder and juvenile mania: An overlooked comorbidity? *Journal of the American Academy of Child and Adolescent Psychiatry, 35* (8), 997–1008.

**Blanco, C., Orensanz-Munoz, L., Blanco-Jerez, C. & Saiz-Ruiz, J. (1996).**
Pathological gambling and platelet MAO activity: A psychobiological study. *American Journal of Psychiatry, 153* (1), 119–121.

**Blanco, C., Petkova, E., Ibanez, A. & Saiz-Ruiz, J. (2002).**
A pilot placebo-controlled study of fluvoxamine for pathological gambling. *Annals of Clinical Psychiatry, 14* (1), 9–15.

**Blaszczynski, A. (2000).**
Pathways to pathological gambling: Identifying typologies. *The Electronic Journal of Gambling Issues: eGambling* [On-line], *1.* Available: http://www.camh.net/egambling/issue1/feature/index.html

**Blaszczynski, A.P., McConaghy, N. & Frankova, A. (1990).**
Boredom proneness in pathological gambling. *Psychological Reports, 67* (1), 35–42.

**Blaszczynski, A.P. & Steel, Z. (1998).**
Personality disorders among pathological gamblers. *Journal of Gambling Studies, 14* (1), 51–71.

**Blaszczynski, A.P., Steel, Z. & McConaghy, N. (1997).**
Impulsivity in pathological gambling: The antisocial impulsivist. *Addiction, 92 (1),* 75–87.

**Blume, S.B. (1989).**
Dual diagnosis: Psychoactive substance dependence and the personality disorders. *Journal of Psychoactive Drugs, 21* (2), 139–144.

**Brady, K.T. & Lydiard, R.B. (1992).**
Bipolar affective disorder and substance abuse. *Journal of Clinical Psychopharmacology, 12* (1), 17S–22S.

**Brooner, R.K., King, V.L., Kidorf, M., Schmidt, C.W. & Bigelow, G.E. (1997).**
Psychiatric and substance use comorbidity among treatment-seeking opioid abusers. *Archives of General Psychiatry, 54* (1), 71–80.

**Buckalew, L.W. & Buckalew, N.M. (1995).**
Survey of the nature and prevalence of patients' noncompliance and implications for intervention. *Psychological Reports, 76,* 315–321.

**Buydens-Branchey, L. & Branchey, M. (1993).**
Euphorogenic properties of serotonin agonist m-CPP in cocaine addicts. *Biological Psychiatry, 33* (suppl 6A), 154A.

**Campbell, J.J. & Duffy, J.D. (1997).**
Treatment strategies in amotivated patients. *Psychiatric Annals, 27* (1), 44–49.

**Carlton, P.L. & Manowitz, P. (1994).**
Factors determining the severity of pathological gambling in males. *Journal of Gambling Studies, 10* (12), 147–158.

**Carlton, P.L., Manowitz, P., McBride, H., Nora, R., Swartzburg, M. & Goldstein, L. (1987).**
Attention deficit disorder and pathological gambling. *Journal of Clinical Psychiatry, 48,* 487–488.

**Carrasco, J.L., Saiz-Ruiz, J., Hollander, E., Cesar, J. & Lopez-Ibor, J.J. (1994).**
Low platelet monoamine oxidase activity in pathological gambling. *Acta Psychiatrica Scandinavica, 90,* 427–431.

**Carroll, K.M. & Rounsaville, B.J. (1992).**
Contrast of treatment-seeking and untreated cocaine abusers. *Archives of General Psychiatry, 49,* 464–471.

**Carroll, K.M., Rounsaville, B.J., Nich, C., Gordon, L.T., Wirtz, P.W. & Gawin, F. (1994).**
One-year follow-up of psychotherapy and pharmacotherapy for cocaine dependence: Delayed emergence of psychotherapy effects. *Archives of General Psychiatry, 51* (12), 989–997.

**Castellani, B. & Rugle, L. (1995).**
A comparison of pathological gamblers to alcoholics and cocaine misusers on impulsivity, sensation seeking, and craving. *International Journal of the Addictions, 30* (3), 275–289.

**Clark, D.B. & Sayette, M.A. (1993).**
Anxiety and the development of alcoholism: Clinical and scientific issues. *American Journal on Addictions, 2* (1), 59–76.

**Cloninger, C.R. (1983).**

Genetic and environmental factors in the development of alcoholism. *Journal of Psychiatric Treatment and Evaluation, 5* (6), 487–496.

**Comings, D.E., Gade-Andavolu, R., Gonzalez, N., Wu, S., Muhleman, D., Chen, C., et al. (2001).**
The additive effect of neurotransmitter genes in pathological gambling. *Clinical Genetics, 60* (2), 107–116.

**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* (3), 223–234.

**Conners, C.K., Erhardt, D. & Sparrow, E. (1998).**
The Conners Adult ADHD Rating Scales (CAARS). Toronto, ON: Multi-Health Systems, Inc.

**Coventry, K.R. & Brown, R.I.F. (1993).**
Sensation seeking, gambling and gambling addictions. *Addiction, 88* (4), 541–554.

**Crockford, D.N. & el-Guebaly, N. (1998).**
Naltrexone in the treatment of pathological gambling and alcohol dependence [Letter]. *Canadian Journal of Psychiatry* , *43* (1), 86.

**Croop, R.S., Faulkner, E.B. & Labriola, D.F. for the Naltrexone Usage Study Group (1997).**
The safety profile of naltrexone in the treatment of alcoholism: Results from a multicenter usage study. *Archives of General Psychiatry, 54* (12), 1130–1135.

**Crowley, T.J., Wagner, J.E., Zerbe, G. & Macdonald, M. (1985).**
Naltrexone-induced dysphoria in former opioid addicts. *American Journal of Psychiatry, 142* (9), 1081–1084.

**Dackis, C.A., Gold, M.S., Davies, R.K. & Sweeney, D.R. (1985).**
Bromocriptine treatment for cocaine abuse: The dopamine depletion hypothesis. *International Journal of Psychiatry in Medicine, 15* (2), 125–135.

**Dalby, M.A. (1971).**
Antiepileptic and psychotropic effect of carbamazapine (Tegretol) in the treatment of psychomotor epilepsy. *Epilepsia, 12* (4), 325–334.

**Dalby, M.A. (1975).**
Behavioral effects of carbamazepine. In J.K. Penry & D.D. Dalz (Eds.), *Complex Partial Seizures and Their Treatment: Advances in Neurology, Vol. II.* (pp. 331–343). New York: Raven Press.

**Daniel, M., Martin, A.D. & Carter, J. (1992).**
Opiate receptor blockade by naltrexone and mood state after acute

physical activity. *British Journal of Sports Medicine, 26,* 111–115.

**DeCaria, C.M., Begaz, T. & Hollander, E. (1998a).**
Serotonergic and noradrenergic function in pathological gambling. *CNS Spectrums, 3,* 38–47.

**DeCaria, C.M., Hollander, E., Begaz, T., Schmeidler, J., Wong, C., Cartwright, C., et al. (1998b, September).**
*Reliability and validity of a pathological gambling modification of the Yale-Brown Obsessive-Compulsive Scale (PG-YBOCS): Preliminary findings.* Presented at the Third International Obsessive-Compulsive Disorders Conference, Madeira.

**DeCaria, C., Hollander, E., Grossman, R., Wong, C.M., Mosovitch, S.A. & Cherkasky, S. (1996).**
Diagnosis, neurobiology, and treatment of pathological gambling. *Journal of Clinical Psychiatry, 57* (Suppl. 8), 80–84.

**Dole, V.P. & Nyswander, M. (1965).**
A medical treatment for diacetylmorphine (heroin) addiction. *Journal of the American Medical Association, 193* (8), 646–650.

**Eisen, S.A., Lin, N., Lyons, M.J., Scherrer, J.F., Griffith, K., True, W.R., et al. (1998).**
Familial influences on gambling behavior: An analysis of 3359 twin pairs. *Addiction, 93* (9), 1375–1384.

**Erickson, C.K. (1996).**
Review of neurotransmitters and their role in alcoholism treatment. *Alcohol and Alcoholism, 31* (Suppl. I), 5–11.

**Fowler, C.J., von Knorring, L. & Oreland, L. (1980).**
Platelet monoamine oxidase activity in sensation seekers. *Psychiatry Research, 3* (3), 273–279.

**Fuller, R.K. & Gordis, E. (2001).**
Naltrexone treatment for alcohol dependence. *New England Journal of Medicine, 345* (24), 1770–1771.

**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* (2), 169–184.

**Gawin, F.H. & Kleber, H.D. (1986).**
Abstinence symptomatology and psychiatric diagnosis in cocaine abusers: Clinical observations. *Archives of General Psychiatry, 43* (2), 107–113.

**Gerstein, D.R., Volberg, R.A., Harwood, H. & Christiansen, E.M. (1999).**
*Gambling Impact and Behavior Study: Report to the National*

*Gambling Impact Study Commission.* Chicago: National Opinion Research Center at the University of Chicago.

**Gitlin, M.J. (1995).**
Pharmacotherapy for personality disorders. *Psychiatric Clinics of North America: Annual of Drug Therapy, 2,* 151–185.

**Goddard, G.V. & Douglas, R.M. (1975).**
Does the engram of kindling model the engram of normal long-term memory? *Canadian Journal of Neurological Science, 2* (4), 385–394.

**Goddard, G.V., McIntyre, D.C. & Leech, C.K. (1969).**
A permanent change in brain function resulting from daily electrical stimulation. *Experimental Neurology, 25* (3), 295–330.

**Goldstein, L., Manowitz, P., Nora, R., Swartzburg, M. & Carlton, P.L. (1985).**
Differential EEG activation and pathological gambling. *Biological Psychiatry 20* (11), 1232–1234.

**Gonzalez-Ibanez, A., Saldana, C., Jiminez Murcia, S. & Vallejo, J. (1995, August).**
*Psychological and behavioral features of pathological fruit machine gamblers.* Presented at the First European Conference on Gambling Studies and Policy Issues, Cambridge University, Cambridge.

**Goyer, P.F., Semple, W.E., Rugle, L. & McCormick, R. (1999, June).**
*Brain blood flow and dopamine receptor PET imaging in pathological gamblers.* Presented at the 13 th National Conference on Problem Gambling, Detroit, MI

**Graham, J.R. & Lowenfeld, B.H. (1986).**
Personality dimensions of the pathological gambler. *Journal of Gambling Behavior, 2* (1), 58–66.

**Grant, J.E. & Kim, S.W. (2002).**
Pharmacotherapy of pathological gambling. *Psychiatric Annals, 32* (3), 186–191.

**Greenstein, R.A., O'Brien, C.P., McLellan, A.T., Woody, G.E., Grabowski, J., Long, M., et al. (1981).**
Naltrexone: A short-term treatment for opiate dependence. *American Journal of Drug and Alcohol Abuse, 8* (3), 291–300.

**Grossman, A., Bouloux, P., Price, P., Drury, P.L., Lam, K.S.L., Turner, T., et al. (1984).**
The role of opioid peptides in the hormonal responses to acute exercise in man. *Clinical Science, 67* (5), 483–491.

**Gschwandtner, U., Aston, J., Renaud, S. & Fuhr, P. (2001).**
Pathologic gambling in patients with Parkinson's disease. *Clinical*

*Neuropharmacology, 24* (3), 170–172.

**Halikas, J., Kuhn, K., Carlson, G., Crea, F. & Crosby, R. (1992).**
The effect of carbamazepine on cocaine use. *American Journal on Addictions, 1* (1), 30–39.

**Haller, R. & Hinterhuber, H. (1994).**
Treatment of pathological gambling with carbamazepine. *Pharmacopsychiatry, 27* (3), 129.

**Hand, I. (1998).**
Pathological gambling: A negative state model and its implications for behavioral treatments. *CNS Spectrums, 3,* 58–71.

**Helzer, J.E. & Pryzbeck, T.R. (1988).**
The co-occurrence of alcoholism with other psychiatric disorders in the general population and its impact on treatment. *Journal of Studies on Alcohol, 49* (3), 219–224.

**Hollander, E. (1998).**
Treatment of obsessive-compulsive spectrum disorders with SSRIs. *British Journal of Psychiatry, 173* (Suppl.), 7–12.

**Hollander, E. & Benzaquen, S.D. (1996).**
Is there a distinct OCD Spectrum? *CNS Spectrums, 1,* 17–26.

**Hollander, E., DeCaria, C.M., Finkell, J.N., Begaz, T., Wong, C.M. & Cartwright, C. (2000).**
A randomized double-blind fluvoxamine/placebo crossover trial in pathologic gambling. *Biological Psychiatry, 47* (9), 813–817.

**Hollander, E., DeCaria, C.M., Mari, E., Wong, C.M., Mosovich, S., Grossman, R., et al. (1998).**
Short-term single-blind fluvoxamine treatment of pathological gambling. *American Journal of Psychiatry, 155* (12), 1781–1783.

**Hollander, E., Frenkel, M., DeCaria, C., Trungold, S. & Stein, D.J. (1992).**
Treatment of pathological gambling with clomipramine [Letter]. *American Journal of Psychiatry* , *149,* 710–711.

**Hollander, E., Stein, D., DeCaria, C.M., Cohen, L., Saoud, J., Skokol, A., et al. (1994).**
Serotonergic sensitivity in borderline personality disorder: Preliminary findings. *American Journal of Psychiatry, 151,* 277–280.

**Hollander, E. & Wong, C.M. (1995).**
Obsessive-compulsive spectrum disorders. Journal of *Clinical Psychiatry, 56* (Suppl. 4), 3–6.

**Hollister, L.E., Johnson, K., Boukhabza, D. & Gillespie, H.K. (1981).**
Aversive effects of naltrexone in subjects not dependent on opiates.

*Drug and Alcohol Dependence, 8* (1), 37–41.

**Ibanez, A., Perez de Castro, I., Fernandez-Piqueras, J. & Saiz-Ruiz, J. (2000).**
Association between the low- functional MAO-A gene promoter and pathological gambling. *American Journal of Medical Genetics* [Abstract], *96,* 464–465.

**Isaacson, R.L. (1974).**
*The Limbic System.* New York: Plenum Publ.

**Jaffe, A.J., Rounsaville, B., Chang, G., Schottenfeld, R.S., Meyer, R.E. & O'Malley, S.S. (1996).**
Naltrexone, relapse prevention and supportive therapy with alcoholics: An analysis of patient treatment matching. *Journal of Consulting and Clinical Psychology, 64,* 1044–1053.

**Janal, M.N., Colt, E.W.D., Clark, W.C. & Glusman, M. (1984).**
Pain sensitivity, mood and plasma endocrine levels in man following long-distance running: Effects of naloxone. *Pain, 19* (1), 13–25.

**Kessler, R.C., Crum, R.M., Warner, L.A., Nelson, C.B., Schulenberg, J. & Anthony, J.C. (1997).**
Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Archives of General Psychiatry, 54,* 313–321.

**Kim, S.W. (1998).**
Opioid antagonists in the treatment of impulse-control disorders. *Journal of Clinical Psychiatry, 59* (4), 159–164.

**Kim, S.W. & Grant, J.E. (2001).**
An open naltrexone treatment study in pathological gambling disorder. *International Clinical Psychopharmacology, 16* (5), 285–289.

**Kim, S.W., Grant, J.E., Adson, D.E. & Remmel, R.P. (2001b).**
A preliminary report on a possible naltrexone and nonsteroidal analgesics interaction [Letter]. *Journal of Clinical Psychopharmacology* , *21* (6), 632–634.

**Kim, S.W., Grant, J.E., Adson, D.E. & Shin, Y.C. (2001a).**
Double-blind naltrexone and placebo comparison study in the treatment of pathological gambling. *Biological Psychiatry, 49* (11), 914–921.

**Kim, S.W., Grant, J.E., Adson, D.E., Shin, Y.C. & Zaninelli, R. (2002).**
A double-blind placebo-controlled study of the efficacy and safety of paroxetine in the treatment of pathological gambling. *Journal of Clinical Psychiatry, 63* (6), 501–507.

**Kim, D.K., Lim, S.W., Lee, S., Sohn, S.E., Kim, S., Hahn, C.G., et al. (2000).**
Serotonin transporter gene polymorphism and antidepressant response. *Neuroreport, 11* (1), 215–219.

**Kleber, H.D. (1995).**
Pharmacotherapy, current and potential, for the treatment of cocaine dependence. *Clinical Neuropharmacology, 18* (Suppl I), S96–S109.

**Kraepelin, E. (1921).**
*Manic-Depressive Insanity and Paranoia.* Edinburgh: Livingstone.

**Kranzler, H.R., Modesto-Lowe, V. & Van Kirk, J. (2000).**
Naltrexone vs. nefazodone for treatment of alcohol dependence: A placebo-controlled trial. *Neuropsychopharmacology, 22* (5), 493–503.

**Kruedelbach, N. & Rugle, L. (1994).**
Comparison of non-polyaddicted pathological gamblers, alcoholics, and cocaine addicts on the NEO-personality inventory. In J. Marrotta, J. Cornelius & W.R. Eadington (Eds.), *The Downside: Problem and Pathological Gambling. Proceedings of the Ninth International Conference on Gambling and Risk Taking, Las Vegas* (pp.125-136). Reno: Institute for the Study of Gambling and Commercial Gaming.

**Kruedelbach, N. & Walker, H.I. (2000, June).**
*Gambling subtypes: Psychometric data and illustrative case studies.* Presented at the 11th International Conference on Gambling and Risk Taking, Las Vegas, NV.

**Krystal J.H., Cramer, J.A., Krol, W.F., Kirk, G.F. & Rosenheck, R.A. (2001).**
Naltrexone in the treatment of alcohol dependence. *New England Journal of Medicine, 345* (24), 1734–1739.

**Krystal J.H., Webb, E., Cooney, N., Kranzler, H.R. & Charney, D.S. (1994).**
Specificity of ethanol-like effects elicited by serotonergic and noradrenergic mechanisms. *Archives of General Psychiatry, 51* (11), 898–911.

**Lesieur, H.R. (1988).**
The female pathological gambler. In W.R. Eadington (Ed.), *Gambling Research: Proceedings of the Seventh International Conference on Gambling and Risk Taking, Vol. 5* (pp. 230–258). Reno: Bureau of Business and Economic Research, Univ. of Nevada, Reno.

**Lesieur, H.R. & Blume, S.B. (1991a).**
Evaluation of patients treated for pathological gambling in a combined alcohol, substance abuse and pathological gambling treatment unit using the Addiction Severity Index. *British Journal of*

*Addiction, 86* (8), 1017–1028.

**Lesieur, H.R. & Blume, S.B. (1991b).**
When Lady Luck loses: Women and compulsive gambling. In N. van den Bergh (Ed.), *Feminist Perspectives on Addictions* (pp. 181–197). New York: Springer Publications.

**Lesieur, H.R. & Rosenthal R.J. (1993, May).**
*Comparative validity of typologies of pathological gamblers.* Presented at the 146th Annual Meeting of the American Psychiatric Association, San Francisco, California.

**Linden, R.D., Pope, H.G. & Jonas, J.M. (1986).**
Pathological gambling and major affective disorder: Preliminary findings. *Journal of Clinical Psychiatry, 47* (4), 201–203.

**Litten, R.Z. (2002, May).**
*Discussant, Naltrexone treatment of alcoholism: A decade of clinical progress.* Symposium at the 155th Annual Meeting of the American Psychiatric Association, Philadelphia.

**Littman-Sharp, N. & Jain, U. (2000).**
Problem gambling and attention deficit hyperactivity disorder. *The Electronic Journal of Gambling Issues: eGambling* [On-line], *2* , Available: www.camh.net/egambling/issue2/clinic/

**Livingston, J. (1974).**
*Compulsive Gamblers: Observations on Action and Abstinence.* New York: Harper Torchbooks.

**Margolin, A., Kosten, T.R. & Avants, S.K. (1992).**
In reply: Drugs for cocaine dependence: Not easy. *Archives of General Psychiatry, 49,* 905–906.

**Marlowe, D.B., Husband, S.B., Lamb, R.J., Kirby, K.C., Iguchi, M.Y. & Platt, J.J. (1995).**
Psychiatric comorbidity in cocaine dependence: Diverging trends, Axis II spectrum, and gender differentials. *American Journal on Addictions, 4* (1), 70–81.

**McCance-Katz, E.F., Leal, J. & Schottenfeld, R.S. (1995).**
Attention deficit hyperactivity disorder and cocaine abuse. *American Journal on Addictions, 4* (1), 88–91.

**McCormick, R.A. (1987).**
Pathological gambling: A parsimonious need state model. *Journal of Gambling Behavior, 3* (4), 257–263.

**McCormick, R.A., Russo, A.M., Ramirez, L.F. & Taber, J.I. (1984).**
Affective disorders among pathological gamblers seeking treatment. *American Journal of Psychiatry, 141* (2), 215–218.

**McCormick, R.A. & Taber, J.I. (1987).**
The pathological gambler: Salient personality variables. In T. Galski (Ed.), *The Handbook of Pathological Gambling* (pp. 9–39). Springfield: Charles C. Thomas.

**McElroy, S., Pope, H.G., Keck, P.E., Hudson, J.I., Phillips, K.A. & Strakowski, S.M. (1996).**
Are impulse-control disorders related to bipolar disorder? *Comprehensive Psychiatry, 37* (4), 229–240.

**Mendelson, J.H., Ellingboe, J., Keuhnle, J.C. & Mello, N.K. (1978).**
Effects of naltrexone on mood and neuroendocrine function in normal adult males. *Psychoneuroendocrinology, 3* (3-4), 231–236.

**Meyer, G. (1989).**
*Glucksspieler in Selbsthilfegruppen: Erste Ergebnisse einer empirischen Untersuchung [Gamblers in Self-help Groups: First Results of an Empirical Study].* Hamburg: Neuland.

**Meyer, R.E. & Mirin, S.M. (1982).**
*The Heroin Stimulus: Implications for a Theory of Addiction.* New York: Plenum.

**Mirin, S.M., Weiss, R.D., Griffin, M.L. & Michael, J.L. (1991).**
Psychopathology in drug abusers and their families. *Comprehensive Psychiatry, 32* (1), 36–51.

**Mirin, S.M., Weiss, R.D., Michael, J. & Griffin, M.L. (1988).**
Psychopathology in substance abusers: Diagnosis and treatment. *American Journal of Drug and Alcohol Abuse, 14* (2), 139–157.

**Modell, J.G., Glaser, F.B., Cyr, L. & Mountz, J.M. (1992).**
Obsessive and compulsive characteristics of craving for alcohol in alcohol abuse and dependence. *Alcoholism: Clinical and Experimental Research, 16* (2), 272–274.

**Molina, J.A., Sainz-Artiga, M.J., Fraile, A., Jimenez-Jimenez, F.J., Villanueva, C., Orti-Pareja, M., et al. (2000).**
Pathologic gambling in Parkinson's disease: A behavioral manifestation of pharmacologic treatment? *Movement Disorders, 15* (5), 869–872.

**Monahan, P., Black, D.W. & Gabel, J. (1996).**
Reliability and validity of a scale to measure change in persons with compulsive buying. *Psychiatry Research, 64* (1), 59–67.

**Monterosso, J.R., Flannery, B.A., Pettinati, H.M., Oslin, D.W., Rukstalis, M., O'Brien, C.P., et al. (2001).**
Predicting treatment response to naltrexone: The influence of craving and family history. *American Journal on Addictions, 10* (3), 258–268.

**Moran, E. (1970).**
Varieties of pathological gambling. *British Journal of Psychiatry, 116 (535),* 593–597.

**Moreno, I., Saiz-Ruiz, J. & Lopez-Ibor, J.J. (1991).**
Serotonin and gambling dependence. *Human Psychopharmacology, 6* (Suppl.), 9–12.

**Moskowitz, J.A., (1980).**
Lithium and Lady Luck: Use of lithium carbonate in compulsive gambling. *New York State Journal of Medicine, 80* (5), 785–788.

**Murphy, D.L., Mueller, E.A., Garrick, N.A. & Aulakh, C.S. (1986).**
Use of serotonergic agents in the clinical assessment of central serotonergic function. *Journal of Clinical Psychiatry, 47* (Suppl.), 9–13.

**Nace, E.P. (1989).**
Personality disorder in the alcoholic patient. *Psychiatric Annals, 19* (5), 256–260.

**Nordin, C. & Eklundh, T. (1999).**
Altered CSF 5-HIAA disposition in pathologic male gamblers. *CNS Spectrums, 4,* 25–33.

**Nunes, E.V., Quitkin, F.M. & Klein, D.F. (1989).**
Psychiatric diagnosis in cocaine abuse. *Psychiatry Research, 28* (1), 105–114.

**O'Brien, C.P. & McLellan, A.T. (1996).**
Myths about the treatment of addiction. *Lancet, 347* (8996) *,* 237–240.

**O'Malley, S.S., Jaffe, A.J., Chang, G., Rode, S., Schottenfeld, R., Meyer, R.E., et al. (1996).**
Six-month follow-up of naltrexone and psychotherapy for alcohol dependence. *Archives of General Psychiatry, 53* (3), 217–224.

**Ozga, D. & Brown, J.H. (2000, June).**
*ADHD screening of adult VLT/slot machine pathological gamblers.* Presented at the 11th International Conference on Gambling and Risk Taking, Las Vegas, NV.

**Pallanti, S., Quercioli, L., Sood, E. & Hollander, E. (2002).**
Lithium and valproate treatment of pathological gambling: A randomized single-blind study. *Journal of Clinical Psychiatry, 63* (7), 559–564.

**Papez, J.W. (1937).**
A proposed mechanism of emotion. *Archives of Neurology & Psychiatry, 38,* 725–743.

**Pettinati, H. (1990).**
Diagnosing personality disorders in substance abuse. In L. Harris (Ed.), *Problems of Drug Dependence: Proceedings of the 52nd Annual Scientific Meeting, National Institute on Drug Abuse Research Monograph 105, 1990* (pp. 236–242). Rockville: Department of Health and Human Services.

**Pettinati, H.M., Jensen, J.M. & Tracy, J.I. (1991, June).**
Cocaine vs. alcohol dependence: Axis II and outcome. In A.I. Alterman (Chair), *Antisocial Personality and other Axis II Disorders.* Symposium conducted at the annual meeting of the Research Society on Alcoholism, Marco Island, Fl.

**Pettinati, H.M., Volpicelli, J.R., Pierce, J.D. & O'Brien, C.P. (2000).**
Improving naltrexone response: An intervention for medical practitioners to enhance medication compliance in alcohol dependent patients. *Journal of Addictive Diseases 19* (1), 71–83.

**Phillips, K.A., Hollander, E., Rasmussen, S.A., Aronowitz, B.R., DeCaria, C. & Goodman, W.K. (1997).**
A severity rating scale for body dysmorphic disorder: Development, reliability, and validity of a modified version of the Yale-Brown Obsessive Compulsive Scale. *Psychopharmacology Bulletin, 33* (1), 17–22.

**Post, R.M. (1990).**
Sensitization and kindling perspectives for the course of affective illness: Toward a new treatment with the anticonvulsant carbamazepine. *Pharmacopsychiatry, 23* (1), 3–17.

**Post, R.M., Rubinow, D.R. & Ballenger, J.C. (1986).**
Conditioning and sensitization in the longitudinal course of affective illness. *British Journal of Psychiatry, 149,* 191–201.

**Post, R.M., Uhde, T.W., Putnam, F.W., Ballenger, J.C. & Berrettini, W.H. (1982).**
Kindling and carbamazepine in affective illness. *Journal of Nervous and Mental Disease* [Review], *170* (12), 717–731.

**Potenza, M.N. (2001, June).**
*A functional magnetic resonance imaging study of gambling urges in pathological gambling.* Presented at the 15th National Conference on Problem Gambling, Seattle, WA.

**Racine, R. (1978).**
Kindling: The first decade. *Neurosurgery, 3,* 234–252.

**Ramirez, L.F., McCormick, R.A., Russo, A.M. & Taber, J.I. (1984).**
Patterns of substance abuse in pathological gamblers undergoing treatment. *Addictive Behaviors, 8* (4), 425–428.

**Regier, D.A., Farmer, M.E., Rae, D.S., Locke, B.Z., Keith, S.J., Judd,**

**L.L., et al. (1990).**
Comorbidity of mental disorders with alcohol and other drug abuse: Results from the Epidemiologic Catchment Area (ECA) Study. *Journal of the American Medical Association, 264* (19), 2511–2518.

**Rosenthal, R.J. & Lesieur, H.R. (1992).**
Self-reported withdrawal symptoms and pathological gambling. *American Journal on Addictions, 1,* 150–154.

**Rosenthal, R.J. & Rugle, L. (1994).**
A psychodynamic approach to the treatment of pathological gambling: Part I. Achieving abstinence. *Journal of Gambling Studies, 10,* 21–42.

**Rosenthal, R.J. & Rugle, L. (1998, June).**
*Subtypes of pathological gamblers.* Presented at the 12th National Conference on Problem Gambling, Las Vegas, NV.

**Rounsaville, B.J., Anton, S.F., Carroll, K., Budde, D., Prusoff, B.A. & Gawin, F. (1991).**
Psychiatric diagnoses of treatment-seeking cocaine abusers. *Archives of General Psychiatry, 48* (1), 43–51.

**Rounsaville, B.J. & Kleber, H.D. (1985).**
Untreated opiate addicts: How do they differ from those seeking treatment? *Archives of General Psychiatry, 42* (11), 1072–1077.

**Roy, A., Adinoff, B., Roehrich, L., Lamparski, D., Custer, R., Lorenz, V., et al. (1988).**
Pathological gambling. A psychobiological study. *Archives of General Psychiatry, 45* (4), 369–373.

**Roy, A., DeJong, J. & Linnoila, M. (1989).**
Extraversion in pathological gamblers. Correlates with indexes of noradrenergic function. *Archives of General Psychiatry, 46* (8), 679–681.

**Rugle, L. (1995, October).**
*Clinical assessment of attention deficit hyperactivity disorder in pathological gamblers.* Presented at the Ninth National Conference on Gambling Behavior, San Juan, Puerto Rico.

**Rugle, L. & Melamed, L. (1993).**
Neuropsychological assessment of attention problems in pathological gamblers. *Journal of Nervous and Mental Disease, 181* (2), 107–112.

**Rugle, L. & Rosenthal, R.J. (1993, May).**
*Impulsivity and pathological gambling.* Presented at the 146th Annual Meeting of the American Psychiatric Association, San Francisco, CA.

**Rugle, L., Rosenthal R.J. & Lesieur, H.R. (1996, September).**
*An empirical study of the phases of progression in pathological gamblers.* Presented at the Tenth National Conference on Gambling Behavior, Chicago, IL.

**Seedat, S., Kesler, S., Niehaus, D.J.H. & Stein, D.J. (2000).**
Pathological gambling behaviour: Emergence secondary to treatment of Parkinson's disease with dopaminergic agents. *Depression and Anxiety, 11* (4), 185–186.

**Siever, L.J. & Davis, K.L. (1991).**
A psychobiological perspective on the personality disorders.*American Journal of Psychiatry, 148* (12), 1647–1658.

**Sinclair, J.D. (1998).**
New treatment options for substance abuse from a public health viewpoint. *Annals of Medicine, 30* (4), 406–411.

**Slutske, W.S., Eisen, S., True, W.R., Lyons, M.J., Goldberg, J. & Tsuang, M. (2000).**
Common genetic vulnerability for pathological gambling and alcohol dependence in men. *Archives of General Psychiatry, 57* (7), 666–673.

**Solursh, L.P. (1988).**
Combat addiction: Post-traumatic stress disorder re-explored. *Psychiatric Journal of the University of Ottawa , 13* (1), 17–20.

**Solursh, L.P. (1989).**
Combat addiction: Overview of implications in symptom maintenance and treatment planning. *Journal of Traumatic Stress, 2* (4), 451–462.

**Specker, S.M., Carlson, G.A., Christenson, G.A. & Marcotte, M. (1995).**
Impulse control disorders and attention deficit disorder in pathological gamblers. *Annals of Clinical Psychiatry, 7* (4), 175–179.

**Specker, S.M., Carlson, G.A., Edmonson, K.M., Johnson, P.E. & Marcotte, M. (1996).**
Psychopathology in pathological gamblers seeking treatment. *Journal of Gambling Studies, 12* (1), 67–81.

**Stein, D.J., Hollander, E., Cohen, L., Simeon, D. & Aronowitz, B. (1995).**
Serotonergic responsivity in trichotillomania: Neuroendocrine effects of m-chlorophenylpiperazine. *Biological Psychiatry, 37,* 414–416.

**Stone, M. (1993).**
*Abnormalities of Personality.* New York: W.W. Norton.

**Strakowski, S.M. & DelBello, M.P. (2000).**
The co-occurrence of bipolar and substance use disorders. *Clinical*

*Psychology Review, 20* (2), 191–206.

**Tohen, M., Waternaux, C.M. & Tsuang, M.T. (1990).**
Outcome in mania: A 4-year prospective follow-up of 75 patients utilizing survival analysis. *Archives of General Psychiatry, 47* (12), 1106–1111.

**Van der Kolk, B., Greenberg, M., Boyd, H. & Krystal, J. (1985).**
Inescapable shock, neurotransmitters, and addiction to trauma: Toward a psychobiology of post-traumatic stress. *Biological Psychiatry 20* (3), 314–325.

**Wada, J.A., Sato, M. & Corcoran, M.E. (1974).**
Persistent seizure susceptibility and recurrentspontaneous seizures in kindled cats. *Epilepsia, 15* (4), 465–478.

**Ward, P.B., Catts, S.V., Norman, T.R., Burrows, G.D. & McConaghy, N. (1987).**
Low platelet monoamine oxidase and sensation seeking in males: An established relationship? *Acta Psychiatrica Scandinavica, 75* (1), 86–90.

**Washton, A.M. (1989).**
*Cocaine Addiction.* New York: Norton

**Washton, A.M., Gold, M.S. & Pottash, A.C. (1984).**
Successful use of naltrexone in addicted physicians and business executives. *Advances in Alcohol and Substance Abuse, 4* (2), 89–96.

**Weiss, R.D. & Collins, D.A. (1992).**
Substance abuse and psychiatric illness: The dually diagnosed patient. *American Journal on Addictions, 1* (2), 93–99.

**Weiss, R.D. & Mirin, S.M. (1987).**
Substance abuse as an attempt at self-medication. *Psychiatric Medicine, 3,* 357–367.

**Weiss, R.D., Mirin, S.M., Griffin, M.L. & Michael, J.L. (1988).**
Psychopathology in cocaine abusers: Changing trends. *Journal of Nervous and Mental Disease, 176* (12), 719–725.

**Weiss, R.D., Pope, H.G. & Mirin, S.M. (1985).**
Treatment of chronic cocaine abuse and attention deficit disorder, residual type, with magnesium pemoline. *Drug and Alcohol Dependence, 15* (1-2), 69–72.

**Wender, P.H. (1995).**
*Attention Deficit Hyperactivity Disorder in Adults.* New York: OxfordUniversity Press.

**West, S.A., McElroy, S.L., Strakowski, S.M., Keck, P.E. & McConville,**

**B.J. (1995).**
Attention deficit hyperactivity disorder in adolescent mania. *American Journal of Psychiatry, 152* (2), 271–273.

**Wilens, T.E., Biederman, J., Spencer, T.J. & Frances, R.J. (1994).**
Comorbidity of attention deficit hyperactivity and psychoactive substance use disorders. *Hospital and Community Psychiatry, 45* (5), 421–435.

**Winokur, G., Coryell, W., Endicott, J. & Akiskal, H. (1993).**
Further distinctions between manic-depressive illness (bipolar disorder) and primary depressive disorder (unipolar depression). *American Journal of Psychiatry, 150* (8), 1176–1181.

**Winsberg, B.G. & Comings, D.E. (1999).**
Association of the dopamine transporter gene (DAT1) with poor methylphenidate response. *Journal of the American Academy of Child and Adolescent Psychiatry, 38* (12), 1474–1477.

**Winters, K.E., Bengston, P., Dorr, D. & Stinchfield, R.D. (1998).**
Prevalence and risk factors of problem gambling among college students. *Psychology of Addictive Behaviors, 12,* 127–135.

**Winters, K.E., Stinchfield, R. & Fulkerson, J. (1993).**
Patterns and characteristics of adolescent gambling. *Journal of Gambling Studies, 9* (4), 371–386.

**Wray, I. & Dickerson, M.G. (1981).**
Cessation of high frequency gambling and "withdrawal" symptoms. *British Journal of Addiction, 76* (4), 401–405.

**Ziednis, D.M. & Kosten, T.R. (1991).**
Depression as a prognostic factor for pharmacological treatment of cocaine dependence. *Psychopharmacological Bulletin, 27* (3), 337–343.

**Zimmerman, M., Breen, R.B. & Posternak, M.A. (2002).**
An open-label study of citalopram in the treatment of pathological gambling. *Journal of Clinical Psychiatry, 63* (1), 44–48.

**Acknowledgements:** *The author would like to thank Timothy Fong, MD, David Gorelick, MD, Loreen Rugle, PhD, Hermano Tavares, MD and Jeffrey Wilkins, MD for their helpful comments.*

*This article was not peer-reviewed.*
*Submitted: November 11, 2003*

**For correspondence**
*Richard J. Rosenthal, MD*
*435 N. Roxbury Drive*
*Beverly Hills, CA 90210*

*U.S.A.*

*Tel: (310) 278-3746*
*Fax: (310) 278-1958*
*E-mail: rrosenth@ucla.edu*

*Richard J. Rosenthal, MD, has been treating pathological gamblers for almost 25 years. He co-authored the DSM-IV diagnostic criteria, was co-investigator on the first genetic study of gamblers and has published articles and book chapters on the phenomenology of pathological gambling, its course, complications and treatment. Dr. Rosenthal was a member of the National Academy of Science's Committee on the Social and Economic Impact of Pathological Gambling. He founded the California Council on Problem Gambling and has been actively involved in the National Council. In addition to his private practice and teaching duties, he is co-director of the UCLA Gambling Studies Program.*

**issue 10 — february 2004**

contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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

**Table 1**

**Pharmacotherapy research of pathological gambling**

| Study design | Duration | Drug, dosage | Subjects | Type of gambling | Outcome | Comments |
|---|---|---|---|---|---|---|
| **Double-blind** | | | | | | |
| Hollander et al (1992) | 20 weeks (10 each phase) | Clomipramine<br><br>150 mg | N=1, female, 31 y.o. | Bingo, slots, cards, numbers | Brief relapse week 17, otherwise abstinent during trial with 7 months open maintenance at 175 mg | Comorbid social phobia, OCPD, hoarding |
| Haller & Hinterhuber (1994) | 24 weeks (12 each phase) | Carbamazepine 600 mg | N=1, male, 37 y.o. | Roulette | Abstinent for duration of trial and during 2 1/2 yrs open maintenance | Impressive result given long history, previous Rx failures, absence of comorbidity |
| Hollander et al (2000) | 17 weeks (8 week crossover) | Fluvoxamine<br><br>100-250 mg (mean dosage 195 mg) | N=15,<br><br>10 (all male)<br><br>completed week 12 | Sports, horse racing predom. | 67 % vs 25 % improvement on PG-CGI.<br><br>Improvement on PG-YBOCS not stat.signif. | only 4 fluvoxamine responders |
| Kim et al (2001) | 12 weeks (11 on naltrexone or placebo) | Naltrexone<br><br>100-250 mg<br><br>(mean dose 188 mg) | N=83, mostly women, 45 completed week 6 | Slot machines | 75 % (15/20) improved or very much improved on PG-CGI vs 24% on placebo | Higher gambling urges at baseline responded better.<br><br>Elevated LFTs due to analgesics. |
| Blanco et al (2002) | 6 months (randomized to fluvoxamine or placebo) | Fluvoxamine<br><br>100-250 mg | N=32 (66% male) | No information | Fluvoxamine not statistically different from placebo in time and money spent gambling.<br><br>Only 3/15 on medication completed | 54% placebo response at end of 4 months (but lack of data on use of gambling self-help, therapy groups) |
| Kim et al (2002) | 8 weeks (randomized after 1 week placebo lead-in) | Paroxetine<br><br>10-60 mg<br><br>(mean dose 51.7 mg) | N=45 (30 women, 15 men),<br><br>41 completed. | Mainly slots (91.3% of paroxetine group) or bingo (26.1%) | Significant improvement on CGI and G-SAS by wk 6-8 | No signif. difference between groups in percentage of weekly income lost to gambling (20% vs 12.2%) |
| | | | | | | |
| **Single -blind** | **Duration** | **Drug, Dosage** | **Subjects** | **Type of gambling** | **Outcome** | **Comments** |
| | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Hollander et al (1998) | 8 week placebo lead in followed by 8 weeks of medication | Fluvoxamine<br><br>100-300 mg<br><br>(mean dose 220 mg) | N=16,<br><br>10 (6 males, 4 females) completed | Sports, horses (male), poker machine, slots, lottery (female) | 7/10 responded positively to CGI, PG-YBOCS, decreased craving and abstinence | 2/3 non-responders had comorbid cyclothymia. |
| Pallanti et al (2002) | 14 weeks (randomized to lithium or valproate) | Lithium 600-1200 mg (mean dose 795 mg) vs. valproate 600-1500 mg (mean dose 874 mg) | N=42, 32 male, 10 female | Video poker (26), horses (18), lotto (12),<br><br>cards (10), stocks (6), sports (5) | 14/23 lithium responders,<br><br>13/19 valproate responders to CGI, also to PG-YBOCS. But high dropout rate for lithium group – 8/23 (34.8%) | Tried to exclude BD but soft bipolars may have been included.<br><br>Mood stabilizers may have anti-impulsive effect. |
| **Open-label** | | | | | | |
| Kim & Grant (2001) | 6 weeks | Naltrexone 25-250 mg (mean dose 157 mg) | N=17 (7 male, 10 female). 14 completers | No information | Signif. decreases in CGI and G-SAS. Response by week 4. Most stopped gambling by week 6. | 2 gamblers relapsed when medication stopped, suggesting not placebo response |
| Zimmerman et al (2002) | 12 weeks | Citalopram 10-60 mg (mean dose 34.7 mg) | N=15, 9 completed | Machine, lottery | Decreased days gambling, money lost, urges and preoccupation. Improved by week 2 | 8/15 had MDD at baseline, 3/15 with panic disorder. New instrument - OCDS |
| **Case reports** | | | | | | |
| Moskowitz (1980) | Continued on medication 1 1/2—2 1/2 years, third not known | Lithium 1800 mg | N=3 (all male), 3/3 bipolar disorder | Horse racing, poker, stock market | Abstinence, loss of interest in gambling, emotional stability, general improvement.<br><br>Corroborated by family members. Long-term follow-up | All were binge gamblers, mainly coincided with manic cycles |
| Crockford & el – Guebaly (1998) | 4 weeks | Naltrexone 50 mg | N=1, male,<br><br>49 y.o. | VLTs | Cessation of gambling craving within 48 hours. | Already abstinent. Specific effect on cravings |
| Kim (1998) | 2+ weeks, 9 months maintenance | Naltrexone<br><br>100 mg | N=1, male,<br><br>55 y.o. | Casino (machines) | Cessation of anticipatory excitement to gamble once Naltrexone reached 100 mg | Remained abstinent from gambling and compulsive shopping |

CGI = Clinical Global Impression scale. PG-YBOCS = Yale Brown Obsessive Compulsive Scale modified for pathological gambling.

G -SAS = Gambling Symptom Assessment Scale.  OCDS -PG = Obsessive Compulsive Drinking Scale modified for pathological gambling.

eGambling
THE ELECTRONIC JOURNAL OF GAMBLING ISSUES

contents
archive
links
subscribe
submissions

**Essay**

*[This article prints out to about 19 pages.]*

# Fifteen years of problem gambling prevalence research: What do we know? Where do we go?

*By Rachel A. Volberg*
*Gemini Research, Ltd.*
*Northampton, MA 01061 USA*
*E-mail: rvolberg@geminiresearch.com*

## Abstract

This paper charts the rapid growth of problem gambling prevalence research in North America and internationally. Looking beyond the overall prevalence of problem gambling in the general population, the results of these studies support the notion of a link between the expansion of legal gambling opportunities and the prevalence of problem gambling as well as the notion that the characteristics of problem gamblers change in response to changes in the availability of specific types of gambling. The results of these studies also challenge existing concepts and definitions of problem gambling. In the future, it will be important to improve how problem gambling prevalence research is done. Such work is likely to include changes in how we measure gambling problems as well as requiring us to take steps to overcome obstacles in achieving representative samples of the population and obtaining valid and accurate information.

## Introduction

In the second edition of *The Chase: Career of the Compulsive Gambler,* published in 1984, Henry Lesieur included an Afterword in which he described several momentous developments related to problem gambling that had taken place in the United States in the years since his book was first published. These developments included the first national survey of gambling and gambling-related problems in the United States, which was undertaken in 1975 as part of the work of the Commission on the Review of National Policy Toward Gambling and the inclusion of the diagnosis of pathological gambling in the American Psychiatric Association's *Diagnostic and Statistical Manual* in 1980. At the end of this chapter, Lesieur emphasized the critical need for research to improve our understanding of problem gambling and to assist policy-makers and treatment professionals in their work. In particular, he noted the need for "solid epidemiological research … to find out the incidence and prevalence of pathological gambling" (Lesieur, 1984, p. 262).

In 1986, my colleagues and I undertook one of the first state-level epidemiological surveys of problem gambling prevalence as part of a three-year evaluation of problem gambling treatment programs in New York State (Volberg & Steadman, 1988). Few tools existed at that time to assess gambling-related difficulties and none that were based on the diagnostic criteria of the American Psychiatric Association (1980). Henry Lesieur was a consultant to our New York State evaluation and kindly provided us with a pre-publication copy of his newly developed South Oaks Gambling Screen (SOGS) for use in our survey.

This paper begins by charting the rapid growth of problem gambling prevalence research in North America and internationally, outlines a few of the many interesting findings that have emerged from this research and ends by considering several important challenges in our investigations of the epidemiology of problem gambling. In writing this paper, I have become more aware than ever of the debt that all of us who work in the field of gambling studies owe to Henry Lesieur and his early fascination with "the gambling world" (Lesieur, 1984, p. ix).

## The growth of problem gambling prevalence research

With the rapid expansion of legal gambling in the 1970s and 1980s, state governments began to establish services for individuals with gambling problems. In establishing these services, policy-makers and program planners initially sought answers to questions about the number of people in the general population who might seek help for their gambling-related difficulties. These questions required epidemiological research to identify the number of problem and pathological gamblers, ascertain their demographic characteristics and determine the likelihood that they would utilize treatment services if these became available.

Pathological gambling was first recognized as a medical disorder in 1980 when the American Psychiatric Association included it as a diagnosis in

the *DSM-III* (American Psychiatric Association, 1980). Within a few years, the first tool based on these psychiatric criteria to screen for gambling problems in clinical populations — the South Oaks Gambling Screen (SOGS) — had been developed (Lesieur & Blume, 1987). Like other tools in psychiatric research, the SOGS was quickly adopted for use in epidemiological research as well as in clinical settings. By 2003, the SOGS — or one of its many variants (Lesieur, 1994; National Research Council, 1999) — had been used in population-based research in more than 50 jurisdictions in the United States, Canada, Asia and Europe (Abbott & Volberg, 1996, 2000; Bondolfi, Osiek & Ferrero, 2000; Orford, Sproston, Erens, White & Mitchell, 2003; Productivity Commission, 1999; Shaffer, Hall & Vander Bilt, 1997; Volberg, 2001a; Volberg, Abbott, R ö nnberg & Munck, 2001; Welte, Barnes, Wieczorek, Tidwell & Parker, 2001). This widespread use of the SOGS came at least partly from the great advantage that a standard tool provides for making comparisons across and within jurisdictions over time (Walker & Dickerson, 1996).

Although there were increasingly well-focused grounds for concern about the performance of the SOGS in non-clinical environments, this screen quickly became, and to a great extent remains, the de facto standard in the field (Volberg & Banks, 1990). The main criticism of the SOGS has been that the screen was developed and tested in a clinical setting, and its performance in community samples is not well understood (Wiebe, Single & Falkowski-Ham, 2001). Other researchers have questioned the reliability and validity of the SOGS but have gone further in challenging the conceptualization of problem gambling as a lifetime disorder, an assumption that they argue was built into the original version of the instrument (Culleton, 1989; Dickerson, 1993; Walker, 1992).

In 1994, the fourth edition of the *Diagnostic and Statistical Manual* (*DSM-IV*) adopted a new set of criteria for the diagnosis of pathological gambling. The new criteria incorporated empirical research — including a great deal of epidemiological research — that linked pathological gambling to other addictive disorders like alcohol and drug dependence (American Psychiatric Association, 1994). One response to these changes in the conceptualization of pathological gambling was the development of a large number of new screens for problem and pathological gambling. Despite this proliferation, the psychometric properties of most of these new tools remain unexamined. Even more significantly, few of these new screens have been tested for their differential performance in clinical settings, population research and program evaluation. Another concern is how to calibrate the performance of these new screens with the results of nearly two decades of SOGS-based research.

## Looking below the surface

When the results of new problem gambling prevalence studies are announced, policy-makers and the media generally focus their attention on a single number — the overall rate of gambling problems in the general

population. Comparisons are made with prevalence rates in other jurisdictions and questions are asked about the number of problem gamblers that this overall rate represents and about how many of them may seek treatment if such services are made available. While these are important reasons for conducting prevalence research, there is much more to learn by looking beneath and beyond the overall prevalence rate, as the following analyses illustrate.

**Is there a link between gambling expansion and problem gambling prevalence?**

One hotly debated issue in the gambling studies field, legislative circles and the gambling industries is the question of whether or not, and how closely, increases in opportunities to gamble are linked to increases in the prevalence of problem gambling. Results from a range of epidemiological studies support the existence of a link between the availability of some types of legal gambling and higher rates of problem and pathological gambling.

The assumption that increases in the availability of gambling will inevitably lead to increases in the prevalence of problem gambling is likely rooted in the findings of the first national gambling prevalence survey (Kallick, Suits, Dielman & Hybels, 1976). Based on substantial differences in the prevalence rates of "probable compulsive gambling" in a large, nationally representative sample of adults and a sub-sample of adult Nevada residents, this study concluded that widespread legalization of casino gambling in the United States was likely to result in a significant increase in the prevalence of gambling problems.

A meta-analysis of problem gambling prevalence surveys carried out between 1975 and 1996 provided further support for the notion of a direct relationship between gambling availability and the prevalence of gambling problems (Shaffer, Hall & Vander Bilt, 1997, 1999). Utilizing several analytic strategies, these researchers concluded that the prevalence of gambling disorders among adults in the general population increased significantly between 1974 and 1997, a period when the availability of lotteries, casinos and other forms of gambling increased dramatically.

More recently, the gambling impact and behavior survey carried out for the National Gambling Impact Study Commission found that access to a casino within 50 miles (versus 50 to 250 miles, or 80 to 400 km.) was associated with approximately double the rate of pathological gambling (2.1% compared to 0.9%) (Gerstein Volberg, Toce, Harwood, Christiansen, Hoffmann & Murphy et al., 1999). Similarly, the first prevalence survey conducted in Nevada established that the prevalence of pathological gambling in the most mature casino gambling market in the world was somewhere between 75% and 85% higher than in the United States as a whole, depending on how the disorder was measured. Based on past-year SOGS, the prevalence of pathological gambling in Nevada was 3.5% compared with a national rate of 1.9% (Volberg, 2002; Welte et

al., 2001). Based on the lifetime NODS (National Opinion Research Center DSM-IV Screen for Gambling Problems), the prevalence of pathological gambling in Nevada was 2.1% compared with a national rate of 1.2% (Gerstein et al., 1999; Volberg, 2002). Finally, research in New Zealand found that although the past-year prevalence of pathological gambling in the general population declined from 1.2% to 0.5% between 1991 and 1999, residence in Auckland and Christchurch — where large urban casinos opened in the interval between the two studies — emerged as an independent predictor of gambling problems even when controlling for other factors associated with this disorder (Abbott & Volberg, 2000).

A prominent casino industry representative has based his argument that links between increased opportunities to gamble and the prevalence of problem gambling are either weak or non-existent on a range of epidemiological studies conducted in the United States and internationally (Fahrenkopf, 2002). It is true that a number of replication studies in the 1990s, including several directed by the present author, have identified prevalence rates of past-year pathological gambling that were stable or declined over periods ranging from two to eight years (Abbott & Volberg, 2000; Emerson & Laundergan, 1996; Gullickson, Hartmann & Wiersma, 1999; Ipsos Reid & Gemini Research, 2003; Volberg & Moore, 1999a, 1999b; Wallisch, 1996; The WEFA Group, 1997).

It is worth noting that despite increased legal opportunities to gamble in most of these jurisdictions, statistically significant declines in weekly gambling participation were identified in all of the studies directed by the present author. Furthermore, comprehensive services for problem gamblers — including public awareness campaigns, helplines and professional counseling programs — were introduced in all of these jurisdictions. An alternative interpretation is that the relationship between heightened opportunities to gamble and the prevalence of problem gambling may increasingly be moderated by declines in regular gambling participation and growth in the availability of problem gambling services (Abbott, Volberg & Rönnberg, in press).

**Specific gambling activities and the characteristics of problem gamblers**

Another intriguing set of findings relates to the changing demographics of problem and pathological gamblers in different jurisdictions. This analysis emerges from consideration of prevalence surveys carried out in several jurisdictions between 1992 and 2000. Full methodological details for all of these surveys have been published elsewhere (Polzin et al., 1998; Volberg, 1992, 1993, 1995, 1997, 2001b, 2001c; Volberg & Moore, 1999a, 1999b; Volberg & Silver, 1993). In summary, all of the surveys were directed by the present author; the period between baseline and replication ranged from three to eight years; the primary problem gambling screen used in all the surveys was the revised South Oaks Gambling Screen (SOGS-R) (Abbott & Volberg, 1996) and all of the surveys obtained information from representative samples of residents of these

states aged 18 and over living in households that had telephones.

The mix of available gambling activities changed in all five states between the baseline and replication survey. All five states permitted new casinos to begin operations — four riverboat casinos in Louisiana, two new tribal casinos each in Montana, North Dakota and Oregon and 10 new tribal casinos in Washington State. Three of the states — Louisiana, Montana and Oregon — permitted broadly distributed gaming machines, offering mostly video poker to operate throughout the period between baseline and replication; however, Oregon and Louisiana had far smaller numbers of gaming machines per capita compared to Montana. Finally, Washington State was unique both in the number of new tribal casinos and in the dramatic expansion of commercial card rooms. These establishments, legal in only a few North American jurisdictions, were permitted to expand from five to 20 tables per establishment as well as to introduce "house-banked" games. This change occurred in response to pressure from the card room owners facing competition from the newly opened tribal casinos.

Table 1 shows that the proportion of male lifetime problem gamblers in Louisiana, Montana and Oregon decreased between baseline

**Table 1: Demographic characteristics of problem gamblers [1] in five states**

| | | Baseline | Replication | p-value (1-tail) |
|---|---|---|---|---|
| Louisiana | | | | |
| | | (n=128) | (n=105) | |
| | Male | 62.5% | 50.5% | .033 |
| | Non-Caucasian | 40.6 | 40.0 | .463 |
| Oregon | | | | |
| | | (n=75) | (n=69) | |
| | Male | 64.0 | 55.1 | .138 |
| | Non-Caucasian | 21.3 | 14.5 | .143 |
| Washington | | | | |
| | | (n=77) | (n=75) | |
| | Male | 63.2 | 74.7 | .063 |
| | Non-Caucasian | 16.2 | 32.0 | .012 |
| Montana | | | | |
| | | (n=36) | (n=70) | |
| | Male | 52.8 | 47.1 | .291 |
| | Non-Caucasian | 2.9 | 14.3 | .033 |
| North Dakota | | | | |
| | | (n=53) | (n=75) | |
| | Male | 54.7 | 69.3 | .046 |
| | Non-Caucasian | 7.5 | 20.0 | .026 |

(1) Problem gambling is defined as scoring three or more points on the lifetime items of the SOGS-R.

and replication. In contrast, the proportion of male problem gamblers in North Dakota and Washington state increased substantially between baseline and replication. In these two states as well as in Montana, the proportion of problem gamblers from minority groups (primarily Native Americans in Montana and North Dakota) increased significantly between baseline and replication.

While the small sample sizes suggest the need for caution in interpreting these results, they do suggest that the demographic characteristics of problem gamblers in the general population may change in response to changes in the availability of *specific* types of gambling. For example, the proportion of female problem gamblers increased in the three states with widespread availability of gaming machines — a form of gambling particularly attractive to women (Volberg, 2003). Similarly, the proportion of problem gamblers from minority groups increased in the three states where tribal casinos and/or card rooms became more available. Of these, the most intriguing was the increase in the proportion of male problem gamblers in Washington state. Was this a response to the tremendous expansion in the availability of card room gambling in the state — an activity that appeals far more to men than to women?

**Improving our understanding of problem gambling**

Finally, prevalence research has the potential to improve how gambling problems are defined and diagnosed. The discussion here summarizes material presented in greater depth and detail in publications co-authored with my colleagues Marianna Toce-Gerstein and Dean Gerstein (Toce-Gerstein, Gerstein & Volberg, 2003a, 2003b).

The results of the national gambling impact and behavior survey were analyzed to assess whether there was support for the idea that gambling disorders comprise a single, sharply distinguished pathological entity or lie on a continuum — a long-standing debate in the gambling studies field. The analysis examined how the individual criteria for pathological gambling, designated by *DSM-IV,* were distributed across two randomly drawn samples of adults in the United States (from individuals reporting a single criterion to those presenting the full array). A range of statistical procedures, including principal components analysis and multi-level regression modeling, were used to identify subtypes of gamblers based on their overall score on the NODS, a widely used problem gambling screen based on the *DSM-IV.*

The results of this analysis support the notion that there may be a hierarchical family of gambling disorders distinguished qualitatively as well as quantitatively. In other words, while the severity of gambling problems can be represented along a continuum, these data indicate that certain groups of variables may be predictive of several distinct patterns of

gambling problems. These include a non-clinical pattern marked most often by chasing; a subclinical pattern of "problem gambling" characterized by elevated rates of gambling-related fantasy (e.g. lying, gambling to escape, and preoccupation); a clear differential diagnosis of pathological gambling characterized by markedly higher rates of loss of control, withdrawal symptoms, tolerance, risking social relationships and requiring bailouts; and a more severe level of pathological gambling characterized primarily by illegal acts.

It is tempting to assume that this proposed hierarchy reflects a temporal progression through several developmental stages. However, a great deal of research is still needed to determine whether this hierarchy really does represent a temporal sequence. Nevertheless, the results of the analysis offer important signposts to future refinement of gambling diagnoses and, we believe, support the need to establish a new and separate diagnosis for "problem gambling" which, aside from its specific components, may be distinguished by an episodic and possibly self-limiting nature. Certainly, the analysis suggests the centrality of loss of control to the recognized disorder of pathological gambling and provides empirical support for the notion that this disorder shares certain, important similarities with the diagnoses of substance dependence and substance abuse (American Psychiatric Association, 1994).

## Moving forward

What have we learned from a decade and a half of epidemiological research on problem gambling that can aid us in moving forward? As the foregoing section has hopefully demonstrated, there is value in looking at what is going on beneath the surface of the overall prevalence rate in any jurisdiction. The cost of survey research is too high to indulge ourselves with the notion that the only interesting result of such studies is the prevalence rate of problem gambling in the general population. In this section, I present some considerations related to measuring problem gambling and to improving how problem gambling prevalence research is done.

### Whatever happened to the "Eclipse of the SOGS"?

In the wake of growing concerns about the SOGS and the publication of new diagnostic criteria for pathological gambling in 1994, I began predicting that the SOGS would quickly be replaced by one or more *DSM-IV* -based problem gambling screens (Gerstein et al., 1999; Volberg, 1996). Instead, this change has proceeded quite slowly, although use of the *DSM-IV* definition in the new World Mental Health surveys indicates that it is clearly taking place.

Historically, standardized measures like the SOGS emerge in situations where there is, simultaneously, intense distrust and a perceived need for public action (Porter, 1995). The circumstances in which the SOGS

developed into the major tool in problem gambling prevalence research represent just such a situation. In this context, it should not be surprising that the predictions I made were taken by some critics as "discrediting" the SOGS (Fahrenkopf, 2003). This is an enormous overinterpretation of the opinion that I expressed — that the SOGS would soon be supplanted by newer, improved problem gambling screens. In an unpublished response, Dean Gerstein provided a helpful analogy in understanding why the "eclipse" of the SOGS has been slower than predicted.

Until a few weeks ago, Dean was the proud owner of a 1989 Honda Accord. As he put it, "the 2003 Honda Accord is a much improved car compared with the 1989 Accord, and almost anyone with a choice and the money to afford it would prefer to drive the new model. But the 1989 Accord is not thereby'discredited.' There are still many of them on the road, being driven safely and legally; and stockpiles of parts and sturdy engineering may keep them running effectively for years. So it is with the SOGS. But in time, the numbers of both SOGS and 1989 Accords in active use will dwindle to nearly nothing. That is to no one's discredit. In science and engineering, the new always trumps the old, sooner or later."

**How can problem gambling prevalence research be improved?**

On the face of it, finding out how many people there are in a community with serious gambling problems is straightforward. You select a random sample of people from the population, assess them using a valid problem gambling measure and carry out some elementary statistical analysis to generate a prevalence estimate. In reality, for a variety of financial and technical reasons, things are not so simple.

One significant concern relates to the sample sizes typically employed in problem gambling surveys. In general, samples have been too small to detect differences between subgroups in the population that are at the highest risk for gambling problems. With small sample sizes, the margins of error associated with population estimates tend to be quite large. In the case of many subgroups within these studies, error terms may be so large that little confidence can be placed in findings pertaining to them, and researchers have responded by dramatically increasing the sample sizes for problem gambling prevalence surveys in recent years (Abbott & Volberg, 2000; Orford et al., 2003; Volberg et al., 2001).

Another concern in gambling research is with rising refusal rates for all kinds of surveys. Given the uncertainty about the characteristics of individuals who choose not to participate in surveys, it is important to attain the highest possible response rates in gambling surveys. This means budgeting for and completing substantial callbacks to eligible respondents in order to complete as many interviews as possible. This also means employing interviewers with demonstrated success at completing lengthy interviews and experience in converting refusals. Along with increases in sample size, these efforts have led to substantial increases in the cost of problem gambling prevalence surveys as well as

in the time required to complete such surveys.

Facing stringent constraints on the resources available to conduct gambling research, what else can be done to improve the validity of the resulting data? There are at least three additional problems associated with obtaining accurate data in surveys of gambling and problem gambling. These include obstacles in achieving representative samples of the entire gambling population, challenges of obtaining valid and accurate information from survey respondents, and the question of how characteristics of different gambling activities affect both the ability to obtain accurate reports of behavior and to sample representative groups of players. While there is no perfect way to guard against any of these problems, it is possible to improve our methods to take these particular challenges into account.

**Recruiting representative samples of gamblers**

A variety of studies suggest that the most likely explanation for under-reporting of some behaviors such as extreme sexual behavior or heavy alcohol consumption is related to under-sampling of the small proportion of individuals in the population who are heavily involved in these activities, particularly when standard household sampling methods are used. For example, studies based on household sampling are likely to under-represent very heavy drinkers since these individuals are more likely to be institutionalized or incarcerated, less likely to live in households, and may also be less able or willing to participate in surveys. Although such people do not constitute a substantial portion of the population, their effect on mean consumption estimates is believed to be considerable (Polich & Orvis, 1979).

A key difficulty in developing accurate assessments of gambling and problem gambling in the community is the small number of people who gamble heavily, gamble professionally or experience serious difficulties related to their gambling. Small groups like these are difficult to find and interview in surveys of the general population. Difficulties in obtaining a representative sample of the entire gambling population are compounded by the distinct challenges of successfully interviewing such individuals.

Both professional and problem gamblers are difficult to represent in gambling surveys because their numbers relative to the general population are so low. Problem gamblers are additionally difficult to represent in gambling surveys for reasons similar to those of heavy alcohol users. Lesieur (1994) notes that telephone survey methods are likely to under-represent problem gamblers for a variety of reasons. While problem gamblers' lack of telephone service is related to the sampling frame, their absence from home because they are gambling and their reluctance to participate in a gambling-specific survey are related to biases of non-response. As with heavy drinkers, however, if professional gamblers and problem gamblers are under-represented in gambling surveys, the effect on estimates of gambling behavior is likely to be

significant.

The U.S. national survey addressed this issue by interviewing patrons at gambling venues in addition to surveying a randomly selected sample of individuals in the general population. The results of the patron survey confirmed the promise of this approach. On the whole, the patron group was far more likely than the randomly selected sample to play the lottery at least once a week, to gamble in casinos or at the track at least once a month and to consider themselves to be "professional" gamblers. Additionally, this approach meant that substantial numbers of problem and pathological gamblers were included in the final sample (Gerstein et al., 1999). Supplementing household surveys with surveys at gambling establishments is likely to improve the chances that heavy gamblers (including both professional and problem gamblers) would be included in the final results.

**Getting valid and accurate information**

There is a general tendency for human beings to remember emotionally positive events, such as winning, and to forget negative ones, such as losing (Thompson, Skowronski, Larsen & Betz, 1996; Wagenaar, 1986). Painful memories, such as the exact amount of large losses, may be forgotten more readily than happy memories, such as the exact amount of a big win. Alternatively, it is possible that an extremely unpleasant event, like a very large loss, may be more memorable than a large number of smaller losses (Tourangeau, Rips & Rasinski, 2000). In considering the accuracy of information about gambling behavior elicited in surveys, it is important to consider how respondents' personal experiences may affect their ability to recall their gambling involvement with accuracy.

Certainly, more research is needed on the psychological satisfactions of different gambling activities as well as the likely different heuristics associated with different games. Approaches such as asking heavy gamblers and problem gamblers to keep diaries would help us understand the details of these activities and improve our understanding of reports that are obtained from general population samples.

**Characteristics of different gambling activities**

In conducting gambling research, little attention has been paid to characteristic features of different gambling activities and their likely impact on reports elicited from samples of respondents in the population. For example, evolving social attitudes towards gambling and the tacit beliefs of survey respondents about the social desirability of different gambling activities may affect their responses.

Gambling is a broad concept that includes diverse activities, undertaken in a wide variety of settings, and individual and community definitions of gambling can vary widely. Furthermore, there is still stigma associated

with gambling by some groups in society, most notably women and the elderly (Gerstein et al., 1999; Hing & Breen, 2001; McNeilly & Burke, 2002; Volberg, 2003). Attitudes toward gambling and gambling participation also differ greatly across ethnic groups (Volberg, 2003; Volberg, Toce & Gerstein, 1999).

Research is badly needed on the social desirability of different types of gambling and on the relationship between gambling attitudes and reports of participation. Cognitive research is needed to examine the ways in which respondents interpret questions about different types of gambling as well as the processes that respondents use in answering survey questions. Research is also needed to determine whether problem gamblers think about and report their gambling differently than non-problem gamblers.

## Conclusion

Over the last 15 years, we have learned a great deal about how to conduct prevalence research on gambling and problem gambling. The procedures for awarding contracts for conducting such research have been rationalized, sample sizes have increased substantially and field procedures have improved. Future developments are likely to include greater reliance on multi-modal approaches to data collection (e.g. the use of telephone and postal questionnaires as in the Swedish national prevalence survey or the dual-frame sampling method employed in the United States gambling impact and behavior survey) and larger, cooperative efforts involving multidisciplinary research teams.

While efforts will continue to improve our understanding of gambling problems as well as the methods we use to study this phenomenon, the greatest challenge now facing us is the failure on the part of many governments to monitor gambling and problem gambling in a coherent and systematic fashion. A growing number of national governments in Asia and Europe have begun to establish systems that allow the impacts of legal gambling on citizens and communities to be monitored over extended periods of time (Abbott & Volberg, 1999). However, efforts to establish such systems in the United States — including regularly scheduled prevalence surveys — have, thus far, been fruitless. The trend even seems to be in the opposite direction, as demonstrated by the recent decision in Connecticut, in the face of severe budgetary constraints, to renege on the legislative mandate to conduct impact studies of legal gambling every five years (Rhode Island Special House Commission to Study Gaming, 2003).

Prevalence surveys are an essential tool in efforts to monitor the impacts of gambling and problem gambling over time. While prevalence research has become more expensive and more challenging to carry out to the highest standards, these surveys remain the best single method for monitoring problem gambling prevalence and gambling participation over

extended periods of time. What is needed now are regular, systematic and adequately funded assessments of the impacts of legal gambling and the prevalence of problem gambling at the national, regional and local levels. We may have traveled some distance on the road towards the solid epidemiological research called for by Lesieur in 1984, but we still have a long way to go.

## References

**Abbott, M.W. & Volberg, R.A. (1996).**
The New Zealand National Survey of problem and pathological gambling. *Journal of Gambling Studies, 12* (2), 143–160.

**Abbott, M.W. & Volberg, R.A. (1999).**
*Gambling and Problem Gambling in the Community: An International Overview and Critique. Report Number One of the New Zealand Gaming Survey.* Wellington: Department of Internal Affairs.

**Abbott, M.W. & Volberg, R.A. (2000).**
*Taking the Pulse on Gambling and Problem Gambling in New Zealand: Phase One of the 1999 National Prevalence Survey. Report Number Three of the New Zealand Gaming Survey.* Wellington: Department of Internal Affairs.

**Abbott, M.W., Volberg, R.A. & Rönnberg, S. (in press).**
Comparing the New Zealand and Swedish national surveys of gambling and problem gambling. *Journal of Gambling Studies.*

**American Psychiatric Association. (1980).**
*Diagnostic and Statistical Manual of Mental Disorders (3rd ed.).* Washington, DC: Author.

**American Psychiatric Association. (1994).**
*Diagnostic and Statistical Manual of Mental Disorders (4th ed.).* Washington, DC: Author.

**Bondolfi, G., Osiek C. & Ferrero, F. (2000).**
Prevalence estimates of pathological gambling in Switzerland. *Acta Psychiatrica Scandinavica, 101* (6), 473–475.

**Culleton, R.P. (1989).**
The prevalence rates of pathological gambling: A look at methods. *Journal of Gambling Behavior, 5,* 22–41.

**Dickerson, M.G. (1993).**
A preliminary exploration of a two-stage methodology in the assessment of the extent and degree of gambling-related problems in the Australian population. In W.R. Eadington & J.A. Cornelius (Eds.), *Gambling Behavior and Problem Gambling* (pp. 347–363). Reno, NV: Institute for the Study of Gambling and Commercial Gaming.

**Emerson, M.O. & Laundergan, J.C. (1996).**
Gambling and problem gambling among adult Minnesotans: Changes 1990 to 1994. *Journal of Gambling Studies, 12* (3), 291–304.

**Fahrenkopf, F.J. (2002).**
Letter to the editor: Problem gambling prevalence links are yet to be proven. *International Gaming & Wagering Business, 23* (11), 6.

**Fahrenkopf, F.J. (2003).**
Letter to the editor: AGA chief amplifies position concerning prevalence rates. *International Gaming & Wagering Business, 24* (1),10.

**Gerstein, D.R., Volberg, R.A., Toce, M.T., Harwood R., Christiansen, E.M., Hoffmann, J., Murphy, S.A. et al. (1999).**
*Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission.* Chicago, IL: National Opinion Research Center at the University of Chicago.

**Gullickson, A.R., Hartmann, D.J. & Wiersma, W. (1999).**
*A Survey of Gambling Behaviors in Michigan, 1999. Report to the Michigan Department of Community Health.* Kalamazoo, MI: Western Michigan University.

**Hing, N. & Breen, H. (2001).**
An empirical study of sex differences in gaming machine play among club members. *International Gambling Studies, 1,* 67–86.

**Ipsos Reid & Gemini Research. (2003).**
*British Columbia Problem Gambling Prevalence Study: Final Report.* Victoria: British Columbia Ministry of Public Safety and Solicitor General.

**Kallick, M., Suits, D., Dielman, T. & Hybels, J. (1976).**
*Survey of American Gambling Attitudes and Behavior: Final Report to the Commission on the Review of the National Policy Toward Gambling.* Ann Arbor, MI: University of Michigan Press.

**Lesieur, H.R. (1984).**
*The Chase: Career of the Compulsive Gambler.* Cambridge, MA: Schenkman.

**Lesieur, H.R. (1994).**
Epidemiological surveys of pathological gambling: Critique and suggestions for modification. *Journal of Gambling Studies*, *10* (4), 385–398.

**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.

**McNeilly, D.P. & Burke, W.J. (2002).**
Disposable time and disposable income: Problem gambling behaviors in older adults. *Journal of Clinical Geropsychology*, *8* (2), 75–86.

**National Research Council. (1999).**
*Pathological Gambling: A Critical Review.* Washington, DC: National Academy Press.

**Orford, J., Sproston, K., Erens, B., White, C. & Mitchell, L. (2003).**
*Gambling and Problem Gambling in Britain.* London: Brunner-Routledge.

**Polich, J.M. &. Orvis, B.R. (1979).**
*Alcohol Problems: Patterns and Prevalence in the U.S. Air Force. Report to the United States Air Force.* Rand R-2308-AF.

**Polzin, P.E., Baldridge, J., Doyle, D., Sylvester, J.T, Volberg, R.A. & Moore W.L. (1998).**
Final report to the Montana Gambling Study Commission. In Montana Gambling Study Commission, *The 1998 Montana Gambling Study: A Report to the Governor and the 56 th Legislature.* Helena, MT: Montana Legislative Services Division.

**Porter, T.M. (1995).**
*Trust in Numbers: The Pursuit of Objectivity in Science and Public Life.* Princeton, NJ: Princeton University Press.

**Productivity Commission. (1999).**
*Australia's Gambling Industries. Report No. 10.* Canberra: AusInfo.

**Rhode Island Special House Commission to Study Gaming. (2003).**
*Report to the Rhode Island House of Representatives.* Providence, RI: Rhode Island General Assembly.

**Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (1997).**
*Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A Meta-analysis.* Boston, MA: Harvard Medical School, Division on Addictions.

**Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (1999).**
Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health 89* (9), 1369–1376.

**Thompson, C.P., Skowronski, J.J., Larsen S.F. & Betz, A.L. (1996).**
*Autobiographical Memory.* Mahwah, NJ: Erlbaum.

**Toce-Gerstein, M., Gerstein, D.R. &. Volberg, R.A. (2003a).**
A hierarchy of gambling disorders in the general population.

*Addiction, 98*, 1661 – 1672.

**Toce-Gerstein, M., Gerstein, D.R. & Volberg, R.A. (2003b).**
Where to draw the line? Response to comments on'A hierarchy of gambling disorders in the general population.' *Addiction, 98,* 1678 – 1679.

**Tourangeau, R., Rips, L.J. & Rasinski, K. (2000).**
*The Psychology of Survey Response.* Cambridge: Cambridge University Press.

**Volberg, R.A. (1992).**
*Gambling Involvement and Problem Gambling in Montana.* Helena, MT: Montana Department of Corrections and Human Services.

**Volberg, R.A. (1993).**
*Gambling and Problem Gambling in Washington State.* Olympia, WA: Washington State Lottery.

**Volberg, R.A. (1995).**
*Wagering and Problem Wagering in Louisiana.* Baton Rouge, LA: Louisiana Economic Development & Gaming Corporation.

**Volberg, R.A. (1996).**
Prevalence studies of problem gambling in the United States. *Journal of Gambling Studies, 12,* (2), 111–128.

**Volberg, R.A. (1997).**
*Gambling and Problem Gambling in Oregon.* Salem, OR: Oregon Gambling Addiction Treatment Foundation.

**Volberg, R.A. (2001a).**
*When the Chips Are Down: Problem Gambling in America.* New York, NY: The Century Foundation.

**Volberg, R.A. (2001b).**
*Changes in Gambling and Problem Gambling in Oregon, 1997 to 2000.* Salem, OR: Oregon Gambling Addiction Treatment Foundation.

**Volberg, R.A. (2001c).**
*Gambling and Problem Gambling in North Dakota: A Replication Study, 1992 to 2000.* Bismarck, ND: Office of the Governor.

**Volberg, R.A. (2002).**
*Gambling and Problem Gambling in Nevada. Report to the Nevada Department of Human Resources.* Carson City, NV: Department of Human Resources.

**Volberg, R.A. (2003, May).**
Has there been a "feminization"of gambling and problem gambling in the United States? *The Electronic Journal of Gambling Issues:*

*eGambling, 8* [On-line]. Available: http://www.camh.net/egambling/issue8/feature/index.html

**Volberg, R.A. & Banks, S.M. (1990).**
A review of two measures of pathological gambling in the United States. *Journal of Gambling Behavior, 6* (2), 153–163.

**Volberg, R.A. & Moore, W.L. (1999a).**
Appendix D: Gambling and problem gambling in Louisiana: A replication study, 1995 to 1998. In T.P. Ryan & J.F. Speyrer (Eds.), *Gambling in Louisiana: A Benefit/Cost Analysis. Report to the Louisiana Gaming Control Board.* New Orleans, LA: University of New Orleans.

**Volberg, R.A. & Moore, W.L. (1999b).**
*Gambling and Problem Gambling in Washington State: A Replication Study, 1992 to 1998. Report to the Washington State Lottery.* Olympia, WA: Washington State Lottery.

**Volberg, R.A. & Silver, E. (1993).**
*Gambling and Problem Gambling in North Dakota.* Bismarck, ND: North Dakota Department of Human Services.

**Volberg, R.A. & Steadman, H.J. (1988).**
Refining prevalence estimates of pathological gambling. *American Journal of Psychiatry, 145,* 502–505.

**Volberg, R.A., Toce, M.T. & Gerstein, D.R. (1999).**
From back room to living room: Changing attitudes toward gambling. *Public Perspective, 10* (5), 8–13.

**Volberg, R.A., Abbott, M.W., Rönnberg, S. &. Munck, I.M. (2001).**
Prevalence and risks of pathological gambling in Sweden. *Acta Psychiatrica Scandinavica, 104* (4), 250–256.

**Wagenaar, W.A. (1986).**
My memory: A study of autobiographical memory over six years. *Cognitive Psychology, 18,* 225–252.

**Walker, M.B. (1992).**
*The Psychology of Gambling.* Oxford: Pergamon Press.

**Walker, M.B. & Dickerson, M.G. (1996).**
The prevalence of problem and pathological gambling: A critical analysis. *Journal of Gambling Studies, 12* (2), 233–249.

**Wallisch, L. (1996).**
*Gambling in Texas: 1995 Surveys of Adult and Adolescent Gambling Behavior. Report to the Texas Commission on Alcohol and Drug Abuse.* Austin, TX: Texas Commission on Alcohol and Drug Abuse.

**The WEFA Group. (1997, June).**

*A Study Concerning the Effects of Legalized Gambling on the Citizens of the State of Connecticut. Report to the State of Connecticut Department of Revenue Services, Division of Special Revenues.*

**Welte, J., Barnes, G., Wieczorek, W., Tidwell, M. & Parker, J. (2001).** Alcohol and gambling pathology among U.S. adults: Prevalence, demographic patterns and comorbidity. *Journal of Studies on Alcohol, 62,* 706–712

**Wiebe, J., Single, E. & Falkowski-Ham, A. (2001).** *Measuring Gambling and Problem Gambling in Ontario.* Toronto: Canadian Centre on Substance Abuse and Responsible Gambling Council (Ontario).

**Acknowledgments:** The author would like to thank Dean R. Gerstein of the National Opinion Research Center (NORC) at the University of Chicago for his help and support in developing several of the ideas expressed here. Early versions of this paper were presented at the 17th National Conference on Problem Gambling, Louisville, KY (June 19, 2003) and at the 20th Annual Conference of the Responsible Gambling Council, Toronto, Ontario, Canada (September 21, 2003). Work on this paper was partially supported by NIAAA grant AA12982-01 from the National Institute of Health, Bethesda, MD.

*This article was not peer-reviewed.*
*Submitted: December 3, 2003*

**For correspondence:**
*Rachel A. Volberg, PhD*
*Gemini Research Ltd.*
*P.O. Box 1390*
*Northampton, Massachusetts, U.S.A. 01061-1390*
*Phone: 413-584-4667*
*E-mail: rvolberg@geminiresearch.com*

*Rachel A. Volberg, PhD, is president of Gemini Research, Ltd. and a senior research scientist at the National Opinion Research Center. Dr. Volberg has been involved in research on gambling and problem gambling since 1985. She has directed or consulted on numerous surveys carried out in the United States, Canada, Australia, New Zealand, Norway and Sweden. In 1998 and 1999, Dr. Volberg was a co-investigator on the study carried out for the (U.S.) National Gambling Impact Study Commission. She is presently the principal investigator on a study of gambling problems among women drinkers (National Institutes of Health) and she serves as a consultant on two other NIH-funded studies of pathological gambling among twins. Dr. Volberg has published extensively, presented papers at national and international conferences and testified before legislative committees in states and provinces throughout North America. She sits on*

*the Board of Directors of the (U.S.) National Council on Problem Gambling and on the Advisory Board of Responsible Gaming Solutions, LLC.*

**issue 10 — february 2004**


contents

archive | submissions | subscribe | links

Please note that these links will always point to the current issue of *EJGI*. 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