

INCREASING THE ODDS

A Series Dedicated to Understanding Gambling Disorders

VOLUME 3 **Gambling and the Public Health, Part 1**



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INTRODUCTION

PUBLIC HEALTH RESEARCH ON GAMBLING

by Phil Satre

Chairman, National Center for Responsible Gaming

The latest installment of the National Center for Responsible Gaming’s monograph series is the first of two volumes on gambling and public health. Highlighting the public health perspective in *Increasing the Odds: A Series Dedicated to Understanding Gambling Disorders* reflects both the NCRG’s continued support of groundbreaking research and a new emphasis on public health among clinicians, policy makers, and researchers.

Howard Shaffer, Ph.D., C.A.S. of the Harvard Medical School and the Division on Addictions, Cambridge Health Alliance, and David Korn, M.D. of the University of Toronto, were the first to propose a public health framework for understanding gambling and gambling-related problems. They emphasized that scientific research, not anecdotes or junk science, should be the foundation of public health knowledge.

Shaffer and Korn say a public health approach uses a population “lens” to understand gambling disorders within a population and what influences a change from healthy to unhealthy gambling. It encourages a shift from a narrow focus on just individual gamblers to a broader consideration of the social setting; in other words, the social, cultural, and economic factors that influence the spread and patterns of a disorder (Shaffer & Korn, 2002).

A public health strategy is also proactive, according to Shaffer and Korn. Rather than a reactive stance, which waits for the disorder to emerge, a public health approach emphasizes programs and policies to prevent gambling disorders and reduce gambling-related harms. Examples include guidelines for responsible gaming, vehicles for early identification of gambling problems, systems for monitoring and reporting disordered gambling trends, and treatment strategies that offer moderation as well as abstinence as goals (Korn & Shaffer, 1999).

In chapter one of our monograph, Christine Reilly takes a historical look at prevalence research in “The Prevalence of Gambling Disorders in the United States: Three Decades of Evidence.” She observes that prevalence estimates in the general population have remained stable since the 1970s, prompting a call for researchers to move beyond general population studies and increase research on potentially vulnerable subpopulations, such as youth, the elderly, and ethno-cultural groups, in order to determine what encourages or discourages the transition from recreational to problem-related gambling.

In chapter two, “What Influences Youth Gambling?,” John Welte summarizes the findings of his most recent study, highlighting key demographic factors, such as age, race, and gender. This national survey also identified information that can be used in developing public health plans to prevent and reduce negative consequences related to gambling.

As older adults have become highly visible participants at legalized gaming establishments, public concern has surfaced about a potential vulnerability to gambling problems. Rani Desai reports on new research on the relationships between gambling and health consequences by age groups with data from the National Epidemiologic Survey on Alcohol and Related Conditions. In “Older Adults and Gambling,” Desai explains that older/senior recreational gamblers were more likely to report better health measures than non-gamblers. The positive health benefits of recreational gambling for seniors may relate to the opportunity for social activity. From the public health perspective, it is important to look at both the potential benefits and consequences of an activity such as gambling.

In the final chapter, “Does Exposure Always Lead to Gambling Problems?,” Debi LaPlante summarizes how she and Shaffer examined the impact of the expansion of gambling as it relates to increases in gambling-related problems. They found evidence of an “adaptation effect.” In areas of continued exposure and close proximity to gambling, people eventually adapt, and the potential for gambling-related problems decreases over time.

In November 2008, the NCRG will publish a second volume continuing the theme of public health, featuring studies on the social and economic impacts of gambling, effective models for responsible gaming, and the impact of other psychiatric problems on individuals with a gambling disorder. *Increasing the Odds* illustrates the priority we place on translating important peer-reviewed research and closing the knowledge gap between the public and science.

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The Prevalence of Gambling Disorders in the United States: Three Decades of Evidence

by Christine Reilly

Institute for Research on Gambling Disorders

How many people have a gambling problem? That is the essential question posed by epidemiological studies focusing on disordered gambling. A prevalence study seeks to identify the proportion of a defined population that has the target disorder during a given time period. Such research informs scientists and public health planners about the distribution of the disorder in the general population and among subpopulations such as youth and ethnic minorities. Estimates of prevalence are vital to the development and allocation of resources that attempt to reduce gambling-related harms.

This review of prevalence research reveals that estimates of pathological gambling in the general population, ranging from less than 1% to 1.9%, have been fairly stable over the past three decades from study to study, time to time, and place to place despite the various methodologies employed by researchers. This constancy is surprising in view of the dramatic increase in legalized gambling in the United States during this period, and it belies the conventional wisdom that increased exposure to gambling necessarily results in higher rates of the disorder (LaPlante & Shaffer, 2007).

The history of prevalence research on gambling disorders mirrors the growing understanding of pathological gambling as a mental health problem and as a public health issue. The public now understands gambling as a mental health disorder; this was not always the case. In 1972, physician Dr. Robert Custer first proposed a clinical problem he called “compulsive gambling.” His efforts resulted in the addition of “pathological gambling” to the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders* in 1980. Once identified, pathological gambling became the target of epidemiological studies.

GAMBLING DISORDERS AMONG THE ADULT POPULATION

While Dr. Custer was conducting his groundbreaking work, a University of Michigan Survey Research Center team led by Maureen Kallick undertook the daunting task of describing the nature and scope of gambling activities in the United States. The U.S. Commission on the Review of the National Policy Toward Gambling charged her research team with determining the extent of “compulsive” gambling in the United States. In the resulting study, Kallick determined that an estimated 0.8% of the national sample of 1,736 could be classified as “probable” compulsive gamblers, with another 2.3% identified as “potential” compulsive gamblers. By combining the two categories, Kallick determined that 3.1% of the population was estimated to be considered disordered gamblers sometime during their lives (Commission on the Review of the National Policy Toward Gambling, 1976; Kallick, Suits, Dielman, & Hybels, 1979).

The public now understands gambling as a mental health disorder; this was not always the case.

WHAT'S IN A NAME?

Confused by the many terms used to describe gambling addiction? You're not alone. Reflecting the "conceptual chaos" of an emerging field, these terms include "problem gambling," "pathological gambling," "compulsive gambling," and "probable pathological gambling" (Shaffer et al., 1997).

In the Harvard meta-analysis, the investigators used a classification system of levels in order to standardize the different terms used in the studies analyzed (Shaffer & Hall, 1996; Shaffer et al., 1997; Shaffer et al., 1999):

- Level 0 refers to non-gamblers.
- Level 1 describes social or recreational gamblers who gamble without adverse consequences.
- Level 2 describes gamblers who experience problems with gambling but do not meet diagnostic criteria for the disorder; commonly referred to as "problem gamblers."
- Level 3 represents gamblers who meet diagnostic criteria for having a gambling disorder.
- Level 4 describes individuals who seek treatment for a gambling problem regardless of the severity of their symptoms (Shaffer, 2003).¹

The levels classification has another benefit. It avoids pejorative language about the individuals who are struggling with a gambling problem.

The term "disordered gambling" is intended to encompass the various levels of gambling problems (Shaffer et al., 1997). The term "disorder" not only places gambling addiction firmly in the context of all mental disorders (as in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*) but also conveys the "disorder" that characterizes the lives of individuals experiencing problems as a result of their gambling.

¹ There is very little scientific evidence revealing the prevalence of level 4 gamblers. This circumstance is attributable, in part, to the likelihood that gamblers seek and receive treatment in many settings other than addiction treatment programs. Non-specialists (e.g., clergy, primary care physicians, and general practice psychiatrists) often see many disordered gamblers and sometimes do not even recognize this disorder (Gambino, Shaffer, & Cummings, 1992; Shaffer, 2003).

During the next two decades, prevalence studies conducted in the United States and Canada restricted their sampling strategy to limited geographic areas, mainly states and provinces. The next attempt to provide a national estimate was undertaken by the Division on Addictions at Harvard Medical School (HMS) under the direction of Howard Shaffer. Supported by a grant from the National Center for Responsible Gaming, the HMS researchers used a meta-analytic strategy to analyze 120 previously conducted studies to derive estimates for the United States and Canada. Meta-analysis is a research technique used to review and synthesize a body of research. It is especially useful when examining studies that use a variety of methodological approaches, as in Shaffer's analysis, which includes data obtained from as many as 25 different survey instruments (Shaffer, Hall, & Vander Bilt, 1997).

Shaffer and colleagues found that approximately 1.1% of the adult general population were past-year level 3 gamblers, the most severely disordered, and an additional 2.8% were classified as level 2 or subclinical gamblers who are having some problems as a result of their gambling but do not meet diagnostic criteria for the disorder. (See sidebar, "What's in a Name?," at left for a further explanation of these terms.) The lifetime estimates — meaning that the study participants had the symptoms associated with a gambling disorder at some point during their life — were 1.6% for level 3 gambling and 3.9% for level 2 gambling.

Commissioned by the National Gambling Impact Study Commission (NGISC), the National Research Council (NRC) used the Harvard meta-analysis in its review of the gambling literature. In its 1999 report, the NRC concluded that the Harvard study provided "the best current estimates of pathological and problem gambling among

the general adult U.S. population and selected subpopulations” (National Research Council, 1999, p. 89). The NRC’s Committee on the Social and Economic Impact of Pathological Gambling re-analyzed the data from the meta-analysis to provide U.S.-only estimates. The NRC found past year prevalence rates of 0.9% for level 3 gamblers and 2.9% for level 2 gamblers (National Research Council, 1999).

The meta-analysis was published in the *American Journal of Public Health* in 1999 (Shaffer, Hall, & Vander Bilt, 1999). The researchers continued to add new prevalence studies to the meta-analysis and published updated findings in the *Canadian Journal of Public Health* (Shaffer & Hall, 2001). The revised estimates for the United States and Canada were 1.5% for past-year level 3 gambling and 2.5% for past-year level 2 gambling.

During the same period, the NGISC commissioned the National Opinion Research Center (NORC) of the University of Chicago to conduct a national prevalence study. NORC created a new survey instrument, the NORC *DSM* Screen for Gambling Problems (NODS), which was based on an adaptation of the diagnostic criteria for pathological gambling in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994). The NORC household survey found lifetime estimates of 1.3% for problem gambling and 0.8% for pathological gambling. The NORC past-year estimates were 0.4% for problem gambling and 0.1% for pathological gambling (Gerstein, Murphy, Toce et al., 1999).

The next significant new development in the field of gambling epidemiology came when questions about gambling behavior were included in large-scale national surveys of health. The growing public awareness of gambling as a public health concern stimulated the inclusion of gambling in these surveys. Viewing problem gambling from a public health perspective has advanced our understanding of prevalence, and the relationships between disordered gambling behavior and other addictive behaviors, psychiatric disorders, and other health problems (Korn & Shaffer, 1999; Shaffer & Korn, 2002).

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), the largest prevalence study of psychiatric disorders in the United States, was one of the first major national surveys to include questions about gambling. Face-to-face interviews were conducted during 2001 and 2002 with 43,093 U.S. residents aged 18 and older. Conducted and supported by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), the NESARC sample provides national prevalence estimates for activities and conditions related to alcohol and drug use, abuse, and dependence, as well as their associated disabilities.

Led by Nancy Petry, a team of researchers from the University of Connecticut Health Center and NIAAA first published an analysis of the NESARC gambling data in 2005. They estimated the prevalence of lifetime pathological gambling, the most severe form of the disorder, to be 0.4% among the NESARC sample and lifetime “problem gambling” to be 0.9% among this sample. The study found that about 75% of the pathological gamblers also had an alcohol use disorder; 38.1% also had a drug use disorder; 60.4% also had nicotine dependence; 49.6% also had a mood disorder, such as depression; 41.3% also had an anxiety disorder; and 60.8% also had a personality disorder (Petry, Stinson, & Grant, 2005).

The next significant new development in the field of gambling epidemiology came when questions about gambling behavior were included in large-scale national surveys of health.

> *The Prevalence of Gambling Disorders in the United States: Three Decades of Evidence*

In 2006, the Institute for Research on Pathological Gambling and Related Disorders, now known as the Institute for Research on Gambling Disorders, awarded a grant to Harvard Medical School's Department of Health Care Policy for analysis of the gambling data included in the National Comorbidity Survey Replication (NCS-R).

A number of the key findings, published in 2008, are consistent with the other previously published large-scale studies. For example, the investigators found a similar prevalence rate for gambling disorders (lifetime rate of 0.6% pathological gambling; lifetime rate of 2.3% for problem gambling), a high rate of co-occurring psychiatric problems among disordered gamblers, and evidence that people who develop gambling problems start gambling earlier than non-problem gamblers (Kessler, Hwang, LaBrie, Petukhova, Sampson, Winters, & Shaffer, 2008).

The NCS-R also extended our knowledge about gambling disorders by providing information not included in any previous studies: the age of onset (AOO). The AOO is the age at which people first reported the first symptom of a given disorder. This data allowed the researchers to examine the sequencing patterns of the gambling disorder in relation to other psychiatric problems. They found that other mental disorders:

- preceded the onset of about 75% of gambling disorders,
- followed the onset of 23% of gambling disorders, and
- emerged concurrently with about 2% of gambling disorders (Kessler et al., 2008).

As indicated in this review, prevalence estimates of disordered gambling within the general adult population have remained relatively stable from study to study, time to time, and place to place. The similarity and stability of prevalence rates across the globe is especially striking given differences in culture and access to gambling opportunities, as well as divergent research methods and measures. As Table 1 indicates, worldwide rates for past-year level 3 gambling ranges from 0.2 to 2.1%.

Given the stability of these rates over time, Shaffer and colleagues have argued that the era of general population prevalence studies is drawing to a close. They have encouraged researchers to take the “road less traveled” by investigating the risk and protective factors that influence the onset and maintenance of gambling disorders (Shaffer, LaBrie, LaPlante, Nelson, & Stanton, 2004). This is the next step in epidemiological research. In other words, we now have a good idea of how many people have gambling-related problems but do not know much about the factors (i.e., determinants) that influence why or when an individual might develop and continue to suffer from the disorder. Examining vulnerable and resilient segments of the population provides an opportunity to investigate determinants. For example, prevalence studies in the United States have shown elevated rates of gambling problems among particular age groups such as adolescents. Studies of ethnic minorities, the elderly, and groups with lower socio-economic status also appear to yield different estimates of gambling problems compared to the general population. It is not clear why these rates differ or what causal factors might be at work. Researchers need to develop and test new models and theories to explain the determinants so that prevention and treatment efforts can be matched to specific populations (Shaffer et al., 2004).

...prevalence estimates of disordered gambling within the general adult population have remained relatively stable from study to study, time to time, and place to place.

THE LIMITATIONS OF PREVALENCE RESEARCH

Prevalence estimates are key to public health planning. For example, the higher rates of disordered gambling among youth have motivated the development and testing of prevention strategies targeting this age group (e.g., Turner, Macdonald, & Somerset, 2007). However, the limitations of prevalence research also should be noted. Confusion about the limitations of such studies can distort the public debate about gambling. For example, people often confuse prevalence with “incidence.” A prevalence study reveals only the number of existing cases of the target disorder at one point in time; an incidence study estimates the number of new cases of the disorder during a specified period of time. Unlike a prevalence study, an incidence study can tell us about the onset of gambling problems and how exposure to gambling opportunities influences that onset (Shaffer et al., 1997). Incidence studies are rare in the gambling field because of the high costs of conducting multi-year research projects as investigators must wait for new cases to emerge.

A prevalence study reveals only the number of existing cases of the target disorder at one point in time; an incidence study estimates the number of new cases of the disorder during a specified period of time.

Another common misconception is to assume that the prevalence rate is sufficient to provide a formula for allocating gambling-specific treatment resources. Similar to those with other addictive disorders, most people with gambling-related problems do not seek formal treatment. A 2006 study by Wendy Slutske at the University of Missouri shows that approximately one-third of people with gambling disorders get well on their own, without formal treatment (Slutske, 2006). It is incorrect to assume that the prevalence of gambling disorders is the same as treatment need; by making such an assumption, it is likely that resources will go unused, thereby contributing to the public perception that the problem is not very important or that it does not exist at all. Instead, researchers and public health planners should focus on who needs treatment and when, and why people who really need it avoid treatment. Avoiding treatment is an active process and very different from not seeking treatment. Some treatment can repel treatment seekers while other treatment fails to attract treatment seekers. Public health planners also need to develop creative treatment solutions such as brief interventions that can prevent the development of symptoms or reduce existing problems. This is particularly important for level 2 gamblers who already experience gambling-related problems and teeter on a delicate balance between getting worse and getting better.

FUTURE CHALLENGES

Research about the prevalence of disordered gambling behavior in the general population has advanced our understanding of the problem. However, for the field to mature, scientists must improve the models and tools that will lead to a more precise definition and comprehensive understanding of gambling-related problems. Armed with more precise evidence, public health workers can develop and implement effective public health strategies to prevent and reduce gambling-related harms (Shaffer et al., 2004).

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➤ *The Prevalence of Gambling Disorders in the United States: Three Decades of Evidence*

INTERNATIONAL PREVALENCE ESTIMATES																			
	US/	CA ^a	US ^b	US ^c	US ^d	Swed ^e	Fin ^f	Switz ^g	N Zea ^h	UK ⁱ	UK ^j	UK ^k	S Afr ^l	HK ^m	Sing ⁿ	Sp ^o	No ^p	Aus ^q	
Lifetime																			
L3	1.9	----	----	0.42	1.2	----	----	1.0	----	----	----	----	----	1.8	----	1.4- 1.7	----	----	----
L2	4.2	----	----	----	2.7	----	----	1.9	----	----	----	----	----	4.0	----	1.9- 5.2	----	----	----
L1	93.9	----	----	----	96.1	----	----	97.1	----	----	----	----	----	94.1	----	93.1- 97.0	----	----	----
Past year																			
L3	1.5	1.3	1.9	0.2*	0.6	1.5	0.8	0.5	0.7	0.5	0.6	1.4	1.4	----	2.1	----	0.2	2.1	2.1
L2	2.5	----	----	----	1.4	----	2.2	0.8	----	----	----	1.4	1.4	----	2.0	----	0.5	2.8	2.8
L1	96.0	----	----	----	98.0	----	97.0	98.7	----	----	----	97.2	97.2	----	95.9	----	99.3	95.1	95.1

a. United States & Canada

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c. United States using SOGS (Welte, 2002)

d. United States

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* Current prevalence reported by Petry et al. are too few to analyze. Inspection of the publicly available information base finds the past year prevalence of L3 gamblers to be 0.16%

SUMMARY

The Prevalence of Problem Gambling Among U.S. Adolescents and Young Adults: Results from a National Survey

Authors: John W. Welte, Grace M. Barnes, Marie-Cecile O. Tidwell, & Joseph H. Hoffman
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What Influences Youth Gambling?

by John W. Welte, Ph.D.

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Today's young Americans have grown up in a society in which gambling is both common and highly visible. Considering this, are gambling and gambling problems prevalent among adolescents and young adults?

Previous research has yielded varied results, most likely due to differences in screening instruments and definitions of problem gambling, as well as geographic areas. Most studies estimated youth problem gambling rates to be higher than generally found for adults.

This national survey of more than 2,200 U.S. residents aged 14-21 aimed to provide an accurate picture of youth gambling compared with adult gambling, and examine key demographic influences, such as age and gender.

KEY FINDINGS

This study found the rates of problem gambling among youth were not as high as in previous studies. The findings question the common notion that problem gambling is more prevalent among teenagers and young adults than among adults (see Table 1).

TABLE 1
U.S. Youth and Adult Gambling Survey Rates of Problem and Pathological Gambling Measured by DSM-IV¹ Criteria

	%	Problem Gambling (meets 3 or more of the DSM-IV criteria for problem gambling)	Pathological Gambling (meets 5 or more of the DSM-IV criteria for pathological gambling)
Youth N = 2,274	male	4.2	0.7
	female	0.1	0.0
	overall	2.2	0.4
Adults N = 2,631	male	4.2	1.3
	female	2.9	1.4
	overall	3.5	1.4

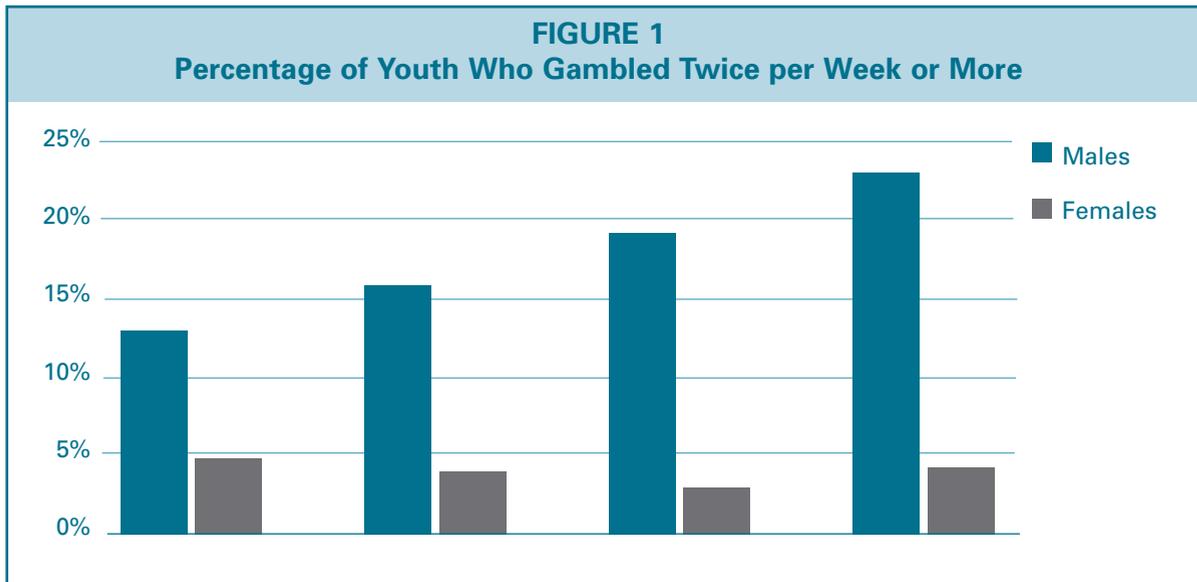
However, when looking at youth only and using SOGS-RA2 criteria for at-risk and problem gambling, the study showed that gambling is widespread among U.S. youths:

- 68% of respondents gambled in the past year
- 11% gambled twice per week or more
- 6.5% were at-risk or problem gamblers (2 or more criteria on the SOGS-RA screen)
- 2.1% were problem gamblers (4 or more criteria on the SOGS-RA screen)

¹Diagnostic and Statistical Manual of Mental Disorders, 4th edition.

²The South Oaks Gambling Screen, a widely used adult assessment of problem gambling, was modified for use with adolescents (SOGS-RA) in 1993 (Winters, Stinchfield, & Fulkerson, 1993).

Figure 1 below highlights an example of the noteworthy results related to gender and age. Frequent gambling increased with age among males, but not females.



Other notable findings include:

- Gambling and problem gambling were much more frequent among males than among females.
- Gambling and problem gambling increased with age.
- There was no consistent relationship between marital status and gambling involvement.
- Respondents who lived independently were more likely to have gambled in the past year and to have been problem gamblers than those who lived with their parents.
- Blacks, Asians, and “mixed/unknown” were less likely to have gambled than whites.
- Respondents categorized in the lowest socioeconomic status were least likely to gamble; but if they gambled, they had higher rates of problem gambling.
- Baptists were less likely than other Protestants to have gambled in the past year; but if they gambled, they had higher rates of frequent gambling.

DISCUSSION

This study highlights the need to examine the influence of demographics — age, gender, race, socioeconomic status, and religion — and life transitions on gambling. For example, males ranked higher than females on every measure of gambling. Males’ involvement in gambling can be high in the adolescent years, while females’ involvement tends to emerge in adulthood.

Among racial sub-groups, Asians showed the lowest level of gambling involvement — any gambling, frequent gambling, at-risk or problem gambling. Blacks overall are the least likely to have gambled; however, if a person is black and does gamble, he or she

> What Influences Youth Gambling?

Greater gambling involvement is associated with an adult status or the transition to adulthood.

is among the highest in gambling involvement. For Native Americans, the rate of problem gambling was relatively high (28 percent). This finding lends itself to further study considering the rise of legal gambling in Indian communities.

As socioeconomic status declines, the findings clearly showed an increase in gambling involvement and negative consequences. Religion also influences the decision to gamble, with Mormons, Jews, and Baptists less likely to have gambled than “other Protestants.” Catholics were the most likely to have gambled.

Life transitions were important, too, in relation to gambling involvement. Greater gambling involvement is associated with an adult status or the transition to adulthood. Youth more likely to gamble resemble adults in that they:

- work full-time
- are not students
- live independently

IMPLICATIONS FOR FUTURE RESEARCH AND PREVENTION

This study may prove useful in developing additional research as well as prevention and treatment programs aimed at target demographic groups. Replicating this study will allow an examination of trends in youth gambling, so that we can learn whether the problem is becoming more serious. Another future research project likely will assess high-risk groups, such as Native Americans.

Public health officials should focus prevention efforts at an early age, since at-risk and problem gambling rates are already noticeable by age 14. Prevention efforts for adolescents should also focus, although not exclusively, on males, who are much more likely than females to have problems with gambling.

BACKGROUND

The Study's Objective

This representative national U.S. survey examines the relationship between youth gambling involvement and demographic variables including socioeconomic status and religion, as well as life transition variables such as employment and living independently of parents. The purpose of this study was to:

1. describe the findings on the prevalence of youth gambling and problem gambling, and compare these findings to other studies;
2. describe how gambling involvement is distributed across demographic subgroups of the youth population, and to test the statistical significance of these distributions, controlling simultaneously for all demographic variables;
3. describe how gambling involvement is distributed among jointly defined age and gender groups, and to test the statistical significance of these joint distributions; and
4. compare the rates of problem and pathological gambling in the current national U.S. youth survey to the rates in a national U.S. adult survey that used the same measure of gambling problems.

Sample & Methodology

A national random-digit-dial telephone survey with a representative sample of 2,274 U.S. residents aged 14-21 was conducted. The sample was spread across the United States according to population, not clustered by geographic area. Interviews were conducted in all 50 states plus Washington, D.C. by trained interviewers at the Research Institute on Addictions in Buffalo, N.Y. The 2,274 telephone interviews were conducted from August 2005 through January 2007; this period of data collection captured possible seasonal variations in gambling. Results were statistically weighted to align the sample with gender, age, and race distributions shown in the U.S. census estimates.

The following demographic variables were assessed:

- age
- race/ethnicity (White or White Hispanic, Black or Black Hispanic, Asian, American Indian, or Alaskan Native; respondents who said they considered themselves to be Spanish, Hispanic, Latino or Chicano were all included in the “Hispanic” category)
- religion
- marital status (never married, married, divorced/annulled/separated, widowed; respondents were also asked if they were living with someone as if married)
- employment status
- educational status
- living independently
- socioeconomic status (based on parents’ years of education and occupational prestige)

The examination of youth gambling was based on four dependent variables, each defined in terms of the 12 months before the interview:

- any gambling
- frequent gambling (twice a week or more on average)
- at-risk gambling (2 or 3 endorsements on the SOGS-RA)
- problem gambling (4+ endorsements)

The primary measure of problem gambling used was the South Oaks Gambling Screen Revised for Adolescents (SOGS-RA), which consists of 12 items which are related to the *DSM-III-R* criteria for pathological gambling (Winters, et al., 1993). Endorsement of two or three items was considered “at risk” gambling; four or more was “problem gambling.” The SOGS-RA was administered to every respondent who reported any gambling during his or her life.

In order to allow a direct comparison between problem/pathological gambling rates among youth with the rates from a previous national survey of adults, the Diagnostic Interview Schedule (DIS) was used. The DIS contains 13 items that map into the 10 *DSM-IV* criteria for pathological gambling, such as preoccupation with gambling and needing to gamble with increasing amounts of money to get the same excitement (Robins, et al., 1996). Endorsement of five or more criteria is considered pathological gambling, and three or more was considered problem gambling. Respondents who endorsed the required number of criteria for the past year were considered to be current pathological or problem gamblers.

> What Influences Youth Gambling?

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For more information about youth gambling, download the first volume of Increasing the Odds at www.ncrg.org/resources/monographs.cfm.

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SUMMARY

Gambling, Health, and Age: Data from the National Epidemiologic Survey on Alcohol and Related Conditions

Authors: Rani A. Desai, Mayur M. Desai, & Marc N. Potenza

(Yale University and Veterans Affairs Connecticut Healthcare System)

Published in *Psychology of Addictive Behaviors*

(2007, volume 21, number 4, pp. 431-440)

Older Adults and Gambling

by Rani A. Desai, Ph.D.

Yale University and Veterans Affairs Connecticut Healthcare System

Older adults are the fastest growing segment of the population and often have more time than younger adults for social and leisure activities. From 1975 to 1998, the percentage of people age 65 and older who reported gambling in the previous year doubled. There is some concern that the rising rate of gambling activity among older adults increases their vulnerability to developing gambling problems and to experiencing negative health consequences of gambling.

While the negative effects of problem and pathological gambling for all age groups are relatively clear, the health effects of recreational gambling are less clearly understood, particularly for older adults. Some primary care medical research suggests that seniors who gamble suffer worse physical and mental health than non-gamblers. Other research, however, suggests responsible social gambling may result in health benefits associated with increased social activity for older adults.

KEY FINDINGS

Among adults age 65 and older, the rates for gambling activity were similar to younger adults, ages 40-64. (See Table 1.)

Differences in gambling activity were observed for gender, education, marital status, employment, and household income. Three examples include:

- more male, well-educated, married respondents reported gambling
- fewer non-working respondents reported gambling
- recreational gamblers had higher incomes than both non-gamblers and problem/pathological gamblers

Problem/pathological gambling was associated with poorer health overall among both age groups. In contrast to the younger recreational gamblers who reported significantly poor health with recreational gambling, older gamblers tended to report better health than non-gamblers. However, even though they reported better health, the recreational older gambler, like their younger counterparts, were far more likely to meet criteria for alcohol abuse/dependence.

	Non-gambling	Recreational Gambling ¹	Problem/Pathological Gambling
age 40-64	68.7%	30.8%	0.5%
age 65 or older	71.1%	28.7%	0.3%

¹Respondents were classified as "recreational gamblers" if they reported gambling more than five times in a year, but had two or less symptoms of problem gambling in the previous year.

Older recreational gamblers reported better physical and mental health functioning than older non-gamblers, despite similar levels of chronic illness.

DISCUSSION

Older recreational gamblers reported better physical and mental health functioning than older non-gamblers, despite similar levels of chronic illness. Two possible explanations — which may be operating simultaneously — are offered for this finding:

1. Older adults who function well enough to engage in social activities in the community may be more likely to gamble recreationally.
2. Older adults may find that gambling keeps them social and more active than they might otherwise be; therefore, they realize a health benefit.

The second explanation is consistent with literature on healthy aging that indicates social and active adults live longer and happier lives.

The results of this study also support previous findings that recreational gambling can be associated with negative health measures. It is difficult to establish, however, the relationship between gambling and health problems such as smoking and drinking. Does gambling lead to poor health, or does poor health lead to gambling? There are some plausible explanations to consider.

- Respondents who have poorer health measures — who smoke, drink, or are obese — may be more attracted to gambling as a recreational activity. Gambling venues, like casinos, typically allow smoking and drinking while gambling.
- Respondents who gamble regularly might be more likely to smoke or drink to excess. Other studies have observed an interactive effect of alcohol and gambling.
- Health measures and gambling may be associated with a third set of factors: common genetic risks. For example, genetic factors for problem gambling, alcohol abuse/dependence, and depression exist in men.
- There may be a behavioral link common to gambling and these health measures. For example, impulsiveness or risk-taking tendencies may link to tendencies to engage in gambling, smoking, drinking, and over-eating.

IMPLICATIONS FOR FUTURE RESEARCH AND TREATMENT

Gambling is likely to remain a popular leisure activity for seniors. While we are concerned about the potential negative health impact of gambling, especially in combination with smoking and drinking alcohol, the results of this study have optimistic implications, too. Responsible, recreational gambling may represent an activity that helps seniors stay active and social, with an upbeat attitude. This can have positive effects on disability, mobility, and mortality. Additional studies will be necessary to improve our understanding of the relationship between gambling and health across the lifespan.

BACKGROUND

The Study's Hypothesis

1. Problem and pathological gambling would be associated with poorer health measures among both younger and older respondents.
2. Recreational gambling would be associated with poorer health measures among younger respondents.
3. Recreational gambling would be associated with better health measures among older respondents.

Sample and Methodology

Data for this study came from the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), which surveyed a nationally representative sample of non-institutionalized U.S. residents (citizens and non-citizens) aged 18 years and over. The final NESARC sample consisted of 43,093 respondents, representing an 81% response rate. The current analysis restricted the sample to those age 40 years and over, resulting in a sample of 25,485 respondents. Of the 25,485 respondents, 72% were 40-64 years of age and 28% were 65 or older.

A range of both subjective and objective health measures were used:

- The Alcohol Use Disorder and Associated Disabilities Interview Schedule-*DSM-IV* Version (AUDADIS-IV), a structured diagnostic assessment tool, was administered by trained lay interviewers. The instrument was tested for reliability and validity, and was found to be a good measure for detecting psychiatric disorders in a community sample.
- The dependent variable was severity of gambling problems. Since gambling severity lies along a continuum, the sample was divided into three groups: 1) non-gamblers, who reported they had never gambled more than five times in a single year in their lifetime; 2) recreational gamblers, who reported gambling more than five times in a year but had two or less symptoms of problem gambling (PG) in the previous year; and 3) problem/pathological gamblers (PPG), who reported three or more symptoms of pathological gambling in the previous year. The low frequency of PG (less than 1% of the sample reported five or more symptoms) necessitated the combination of the problem and pathological groups.
- Health status was assessed by considering: a subjective rating of health by the respondent (from poor to excellent), body mass index, chronic health conditions, recent hospitalization and injuries, and mental and physical health functioning (using a general health assessment instrument, Short Form-12).
- Sociodemographic variables included: age, gender, race/ethnicity, education, marital status, employment status, and household income.

This research was supported by: the Mental Illness Research, Education, and Clinical Center and the Reserve Educational Assistance Program of the Department of Veterans Affairs; Women's Health Research at Yale; and the National Institute on Drug Abuse.

About the author...

Rani A. Desai, Ph.D. is associate professor of psychiatry and epidemiology and public health at Yale University School of Medicine. She serves as associate director of the Northeast Program Evaluation Center, the evaluation arm of mental health services in the Department of Veterans Affairs (VA). Her research utilizes principles of psychiatric epidemiology and services research to examine risk factors and correlates of several psychiatric disorders, with particular attention paid to co-occurring disorders. This research has included studies on pathological gambling, schizophrenia, substance abuse/dependence, the risk of suicide in psychiatric patients, and the mental health problems experienced by the homeless. At the national level, Desai serves as the program evaluator for VA programs on homeless female veterans, and has served on several advisory committees to the VA on the mental health needs of female veterans, with particular attention to military sexual trauma. Desai received a grant in 2002 from the NCRG through the Institute for Research on Pathological Gambling and Related Disorders, now known as the Institute for Research on Gambling Disorders, for a study on gambling behaviors among individuals diagnosed with schizophrenia. She has also served as a peer reviewer for the Institute's extramural grants program.

SUMMARY

Understanding the Influence of Gambling Opportunities: Expanding Exposure Models to Include Adaptation

Authors: **Debi A. LaPlante & Howard Shaffer**

(Harvard Medical School)

Published in the *American Journal of Orthopsychiatry*
(2007, volume 77, number 4, pp. 616-623)

Does Exposure to Gambling Always Lead to Gambling Problems?

by **Debi A. LaPlante, Ph.D.**

The Division on Addictions, Cambridge Health Alliance, Harvard Medical School

Expansion of legalized gambling within a state or community guarantees debate. Proponents argue that expansion creates jobs and revenue and stimulates the local economy. Opponents stress the potential for expansion-related harmful consequences on individuals' mental and physical health, as well as a negative impact on public health. Increasing gambling opportunities, opponents say, increases the potential for gambling-related problems, including pathological gambling.

A review of previous research on exposure offers insight into the consequences of gambling expansion, as well as the concept of adaptation. The adaptation effect suggests that after initial exposure-related increases in adverse reactions, such as excessive gambling, people and populations adapt to the changed environment and moderate their behavior.

PUBLIC HEALTH RISKS OF EXPOSURE TO GAMBLING

Public health research shows that there is a typical pattern or infection curve accompanying exposure to any source that can compromise health. For example, with exposure to environmental pollution, bacteria, or a virus, we expect to see some people more vulnerable to infection, resulting in a rapid initial increase in the rate of infection among the population. Gradually, the rate of new infection will slow, reflecting that some individuals are more resistant and they might not develop the infection. Infected persons can recover with new immunity; in addition, prevention and intervention measures might facilitate such recovery.

If you consider exposure to gambling and other social events from the same public health perspective as exposure to the environmental sources, then we would expect the same infection pattern to apply. This perspective leads to at least three predictable effects on gambling and gambling-related problems:

1. **Occupational exposure** – *gaming industry employees might be at higher risk for gambling-related problems because they are closer to the source than others from the community.*

Research does suggest casino employees have higher rates of gambling problems, as well as alcohol and mental health problems, like depression, compared with the general population. Employees are also more likely to be smokers (Shaffer, Vander Bilt, & Hall, 1999; Shaffer & Hall, 2002).

2. **Temporal or geographic exposure** – *people may be more likely to have gambling problems if they reside in an area of rapid expansion and/or near an epicenter of gambling.*

Exposure to gambling is required for gambling-related problems to develop, but exposure is not the same for all people, all places, or time points.

Research yields mixed responses concerning the temporal or geographic factor, with no clear answer. Sometimes gambling events (e.g., the launch of a new lottery) correlate with gambling-related changes over time, and sometimes they do not. Research

on the geographic factor, however, is more consistent and suggests that when gambling opportunities are close at hand, gambling-related problems are often evident as well. For example, the National Gambling Impact Study Commission found nearly doubled levels of gambling-related problems and pathological gambling where a casino is located within 50 miles (versus 50 to 250 miles) of a person's home (Gerstein et al., 1999).

Much of the existing geographic exposure research is limited, however, because it cannot detect causal relationships between proximity and problems. It is not possible to tell whether casinos cause problems, attract people who already have problems, or develop in areas where people already have problems. Urban development and isolation are also moderating factors to consider. Geographic exposure research is limited, too, by not taking into account the effect of advertising, accessibility to venues, or other infrastructure factors. Arbitrarily determined distance cutoffs (i.e., 50 miles, 100 miles) also hamper accurate measures.

3. **Adaptation** – *gambling-related problems or indicators of problems should show an increase following exposure to the expansion of gambling opportunities or in a geographic epicenter of gambling, but should be followed by a leveling and gradual reduction in these problems.*

Exposure to gambling is required for gambling-related problems to develop, but exposure is not the same for all people, all places, or time points. Expansion also does not uniformly or proportion-

REGIONAL IMPACT OF GAMBLING EXPOSURE

To address limitations of geographic exposure studies, the Harvard Medical School faculty at the Division on Addictions, Cambridge Health Alliance, developed a public health tool called REM, the regional exposure model, which is a standardized scale for researchers comparing geographic exposure to environmental sources that can compromise health. For gambling, the model determines a region's:

- **dose** – the number of venues and gaming industry employees
- **potency** – the number of different types of gambling available
- **duration** – the amount of time gambling has been available

The scores for dose, potency, and duration combine to create the Regional Impact of Gambling Exposure (RIGE) scale. A measure such as the RIGE allows researchers to assess regional variations in exposure that had previously been analyzed using distance cutoff parameters, i.e., a 50-mile radius.

Because the RIGE scale is standardized, researchers are able to tell how much more prevalent problems should be in specific states compared to others if exposure were the driving force for such problems. As conventional wisdom might have predicted, Nevada is the most exposed state. If there were a direct correlation between exposure and gambling problems, RIGE scores for Nevada would be at least eight times higher than any other state. Recent prevalence studies show this is not the case; therefore the relationship between exposure and gambling problems is not linear (Volberg, 2002).

One theory to explain this non-linear relationship is adaptation. Residents of Nevada have been exposed for so long and in such close proximity to gambling opportunities, the impact is no longer as strong. Long-term residents have adapted and built "immunity," so to speak.

> Does Exposure to Gambling Always Lead to Gambling Problems?

ately relate to the prevalence of gambling problems in society; that is, a two-fold expansion of gambling does not necessarily translate into a two-fold increase in gambling-related problems in a population. Factors such as socioeconomic status, personal exposure levels, a region's vulnerability characteristics, and other influences play a role. Exposure does not seem to create uniform consequences. The experience of one person or community might not generalize to other people or communities.

The adaptation effect suggests that following initial increases in the number and type of adverse reactions to new environmental events (such as gambling), individuals will adapt and become more resistant to those events (Shaffer et al., 2004; Zinberg, 1981, 1984). Consequently, the number of associated adverse reactions will decline among the population that has been exposed. For example, during the last quarter century in the United States, the rate of serious gambling problems increased from about 0.8% to about 1.1%. This occurred as gambling rapidly expanded, exposing more people to gambling opportunities. However, new studies reveal that the rate of serious gambling problems is now about 0.6% — or just about the same as it was before most Americans were exposed to gambling. Other research around the world has reported similar adaptations (e.g., Switzerland, New Zealand).

Although Zinberg and Shaffer described this pattern of adaptation for substance use and abuse many years ago, Shaffer and his colleagues were the first to introduce this idea for gambling-related research (Zinberg & Shaffer, 1985; Shaffer, 1997). Some preliminary evidence supports the emergence of this adaptation process around the world. For example, the 2002 survey of gambling-related problems in Nevada found that recent residents of Nevada had more gambling-related problems than long-term residents (Volberg, 2002). Recent residents are more likely to be newly exposed to the widespread availability of legal gambling. Similarly, our study of the health risks of casino employees showed that newer employees had more gambling-related problems than more experienced employees (i.e., employed for more than four years; Shaffer, Vander Bilt, & Hall, 1999). Finally, despite widespread openings of casinos in Switzerland since 2002, the prevalence estimates of past-year disordered gambling have remained stable (Bondolfi et al., 2008).

IMPLICATIONS FOR PUBLIC HEALTH POLICY

If policy makers focus too intently on the adaptation effect, they might underestimate the influence and importance of early increases in gambling-related problems. However, focusing only on exposure might lead to missed economic opportunities for a region. Multiple interpretations of exposure research and the difficulty many have in distinguishing between science and conventional wisdom complicate the need for finding the right balance between exposure and adaptation. It is difficult to determine the level of government involvement that is needed to minimize the risks and maximize the benefits of gambling. Until we know more, we must continue to be concerned about gambling-related problems and their impact on public health and welfare.

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Debi A. LaPlante, Ph.D., is an instructor of psychology in the department of psychiatry at Harvard Medical School and a member of the research team at the Division on Addictions, Cambridge Health Alliance. LaPlante's primary research interest is addiction in special populations. Her work in this area has revealed the importance of considering sociodemographics in the study of addiction. Currently LaPlante is senior editor of the *BASIS* (www.basionline.org), an online weekly science review of the latest research on gambling, alcohol, tobacco, and drugs. LaPlante also serves on the editorial board of *Psychology of Addictive Behaviors*. She consulted for the Massachusetts Council on Compulsive Gambling in the development of a problem gambling self-change toolkit, *Your First Step to Change*, and for Family Health Productions, Inc. in the development of a youth alcohol prevention video toolkit, *Alcohol: True Stories*. LaPlante played a lead role in the development of the *EMERGE* (*Executive, Management and Employee Responsible Gaming Education*) program.

ABOUT THE NCRG

The National Center for Responsible Gaming (NCRG) is the only national organization exclusively devoted to funding research on gambling disorders. Founded in 1996, the NCRG's mission is to help individuals and families affected by gambling disorders by supporting the finest peer-reviewed, scientific research into pathological gambling; encouraging the application of new research findings to improve prevention, diagnostic, intervention and treatment strategies; and advancing public education about responsible gaming.

More than \$22 million has been committed to the NCRG, through contributions from the casino gaming industry, equipment manufacturers, vendors, related organizations and individuals. The NCRG is the American Gaming Association's (AGA) affiliated charity.

Research funding is distributed through the Institute for Research on Gambling Disorders.

For more information, visit www.ncrg.org and www.gamblingdisorders.org.

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