

**GAMBLING AND PROBLEM GAMBLING
IN IOWA
A REPLICATION SURVEY**

Prepared
by
Rachel A. Volberg, Ph.D.

Iowa Department of Human Services,
Division of Mental Health and Developmental Disabilities, Gambling Treatment Program

July 1995

Rachel A. Volberg is President of Gemini Research in Roaring Spring, PA.

Permission to copy, disseminate, or otherwise use information from this report is granted as long as appropriate acknowledgement is given. Cite as:

Volberg, Rachel A., *Gambling and Problem Gambling in Iowa: A Replication Survey*, Des Moines, IA, Iowa Department of Human Services, 1995.

For more information call 515-281-8802, or write to:

Iowa Gambling Treatment Program
Department of Public Health
Lucas Building, Third Floor
Des Moines, IA 50319-0075

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
EXECUTIVE SUMMARY	ii
INTRODUCTION	1
METHODS	3
Questionnaire	3
Sampling	4
Data Analysis	6
GAMBLING IN IOWA	7
Gambling in the General Population	7
Expenditures on Gambling	10
Summary	12
PREVALENCE OF PROBLEM AND PATHOLOGICAL GAMBLING IN IOWA	13
Lifetime Prevalence	13
Current Prevalence	14
Comparing Problem Gambling Across States	15
Summary	18
COMPARING NON-PROBLEM AND PROBLEM GAMBLERS IN IOWA	19
Demographics	19
Weekly Gambling	20
Expenditures	21
Other Significant Differences	22
Comparing Non-Problem and Problem Gamblers Across States	23
Summary	24
COMPARING THE 1989 AND 1995 SURVEYS IN IOWA	26
Comparing the Questionnaires	26
Comparing the Samples	27
Changes in Gambling Involvement	29
Changes in Problem Gambling Prevalence	30
Lifetime Scores on South Oaks Gambling Screen	32
Summary	33

SUMMARY AND CONCLUSION	35
Summary	35
Directions for the Future	35

REFERENCES	37
------------------	----

APPENDIX A:	A History of Gambling Activities in Iowa, 1974-1995
APPENDIX B:	Methods to Assess Problem Gambling in the General Population
APPENDIX C:	Questionnaire for the Iowa Replication Survey
APPENDIX D:	Comparing Iowa with Other Jurisdictions: Demographics, Gambling Involvement and Problem Gambling

LIST OF TABLES

TABLE 1	Comparing the Demographics of the Sample and the General Population	5
TABLE 2	Lifetime Gambling Participation in Iowa, 1995	8
TABLE 3	Gambling Involvement in Iowa, 1995	9
TABLE 4	Reported Monthly Expenditures on Gambling	11
TABLE 5	Comparing Lifetime Problem Gamblers with Non-Problem Respondents	14
TABLE 6	Comparing Lifetime and Current Problem Gamblers with Non-Problem Respondents	15
TABLE 7	Prevalence of Problem Gambling Across Jurisdictions	17
TABLE 8	Demographics of Non-Problem and Problem Gamblers in Iowa	19
TABLE 9	Weekly Gambling Involvement of Non-Problem and Problem Gamblers	20
TABLE 10	Average Monthly Expenditures of Non-Problem and Problem Gamblers	21
TABLE 11	Other Significant Differences Between Non-Problem and Problem Gamblers	22
TABLE 12	Demographics of Non-Problem and Problem Gamblers in Other States	23
TABLE 13	Types of Gambling Included in Iowa Surveys, 1989 and 1995	27
TABLE 14	Demographic Characteristics of Respondents in Iowa, 1989 and 1995	28
TABLE 15	Lifetime Gambling Participation Rates, 1989 and 1995	29
TABLE 16	Demographic Characteristics of Gamblers in Iowa, 1989 and 1995	30
TABLE 17	Comparing Lifetime Prevalence Estimates, 1989 and 1995	31
TABLE 18	Comparing Lifetime Problem Gamblers, 1989 and 1995	32
TABLE 19	Scores on the South Oaks Gambling Screen, 1989 and 1995	33

ACKNOWLEDGEMENTS

We would like to thank the residents of Iowa who were interviewed for this survey. Their contribution has been vital in adding to our knowledge of changes in gambling and gambling-related problems in Iowa and in the United States. We would also like to thank the Iowa Department of Human Services, Division of Mental Health and Developmental Disabilities for commissioning and funding this study as well as Paula Hinkel and the staff of Iowa Field Research who carried out the interviews for the survey.

EXECUTIVE SUMMARY

This report presents the results of the second survey of gambling and problem gambling in the State of Iowa. The main purpose of this study was to examine the hypothesis that increases in the availability of legalized gambling lead to increases in the prevalence of problem gambling. A large sample of Iowa residents aged 18 and over (N = 1,500) were interviewed in February and March, 1995 about the types of gambling they have tried, the amounts of money they spend on gambling, and about gambling-related difficulties. The information in this report is also valuable in the further development of services for problem gamblers in Iowa.

Findings

- ▶ The hypothesis that increases in the availability of legalized gambling lead to increases in the prevalence of gambling-related difficulties in the general population is clearly demonstrated.
- ▶ The rate of lifetime gambling participation in Iowa has risen significantly since the first survey of gambling and problem gambling in 1989. Increases in gambling on machines and on games of skill are particularly associated with the overall increase in lifetime participation in gambling.
- ▶ There has been a substantial and significant increase in the prevalence of lifetime problem and probable pathological gambling in Iowa between 1989 and 1995. Problem and probable pathological gamblers in Iowa are increasingly likely to be male, under the age of 30, non-Caucasian and unmarried. The greatest increase in the gambling involvement of problem and probable pathological gamblers between 1989 and 1995 is in gambling on machines.
- ▶ There has also been a significant increase in the proportion of respondents who do not meet criteria for problem or probable pathological gambling but do admit to some gambling-related difficulties. This suggests that there may be even greater increases in the prevalence of problem and probable pathological gambling in Iowa in the future.
- ▶ Young men with relatively high levels of education and income are the respondents most likely to have ever gambled in Iowa in 1995. These respondents also report spending the greatest amounts on gambling per month.

Directions for the Future

While Iowa pioneered funding for services for problem gamblers, these services are reaching only a fraction of the thousands of Iowa residents with severe gambling-related difficulties. Given expected further increases in the prevalence of gambling-related difficulties in Iowa, it is imperative to maintain, and expand, current services as well as to establish education and prevention services. Directions for the future include increased funding for services, expansion of existing services, development of new services, including public education and prevention, evaluation of both existing and new services to assess their effectiveness and continued monitoring of gambling participation and problem gambling in the state.

INTRODUCTION

Until very recently, the legalization of gambling has proceeded apace with little consideration of the potentially negative impacts that gambling can have on individuals, families and communities. This study, initiated and funded by the Iowa Department of Human Services, examines the extent of gambling and problem gambling in Iowa in 1995 and compares the findings to a similar survey completed in Iowa in 1989 as well as to similar studies conducted elsewhere in the United States. The main purpose of this study is to examine the impact of the introduction of new types of legalized gambling on the prevalence of gambling-related problems among the adult population in Iowa. The results of this study will also be valuable in the further development of services for individuals in Iowa with gambling-related difficulties.

In 1989, a survey funded by the National Institute of Mental Health and the Iowa Department of Human Services assessed lifetime gambling and problem gambling in the state. At that time, legal gambling activities in Iowa included social gambling, bingo, parimutuel wagering on dogs, low-stakes sports pools and a state lottery. The low prevalence of problem gambling in Iowa at that time, compared with other states where wagering opportunities were much greater, led us to hypothesize that increases in the availability of gambling would lead to increases in the prevalence of problem gambling in the general population (Volberg & Steadman 1989).

Since 1989, legal gambling activities in Iowa have expanded rapidly to include parimutuel and simulcast wagering on horses as well as dogs and wagering on table games and slot machines at six riverboat casinos and three Native American casinos. In addition, initial betting limits on casino table games have been eliminated (see Appendix A for a history of gambling activities in Iowa). The rapid expansion in the availability of legal gambling in Iowa and the exposure of Iowa residents to these opportunities created an opportunity to test the power of the hypothesis proposed six years ago.

This report is organized into several sections for clarity of presentation. The Introduction includes a definition of the terms used in the report while the Methods section addresses the details of conducting the 1995 survey of gambling and problem gambling in Iowa. The next three sections detail findings from the present survey, with a focus on gambling in general, on the prevalence of problem gambling in Iowa and, finally, on differences between non-problem and problem gamblers in the state. These sections are followed by a comparison of the 1989 and 1995 studies to assess the power of the hypothesis proposed in 1989. The report concludes with recommendations for the future development of services for problem gamblers in Iowa.

Defining Problem and Pathological Gambling

Since the 1970s, legalized gambling has become a popular recreational pastime throughout North America. In 1974, the first, and only, national survey of gambling behavior in the United States found that 68% of the adult respondents had at some time wagered on one or more of types of legal or illegal gambling (Kallick-Kaufmann 1979). In the 1980s and 1990s, studies in different states have found lifetime gambling participation rates that range from a low of 74% to a high of 92% (Volberg 1994a, 1995a). The majority of people who participate in legal gambling do so responsibly, for entertainment and as a means to socialize with friends and family. These individuals typically do not risk more than they can afford to lose and, if they should *chase* their losses to get even, they do so only briefly.

The term *problem gambling* has been used in different ways in the literature on gambling and problem gambling. The term is sometimes used to refer to individuals who fall short of the diagnostic criteria for pathological gambling but are assumed to be in a preliminary stage in the development of such a pathology (Lesieur & Rosenthal 1990). The term has also been used to refer to individuals who lose excessive amounts of money through gambling, relative to their income, although without reference to specific difficulties that they may experience (Rosecrance 1988). The National Council on Problem Gambling uses this term to indicate *all of the patterns of gambling behavior that compromise, disrupt or damage personal, family or vocational pursuits* (National Council on Problem Gambling 1994).

Pathological gambling lies at one end of a spectrum of problematic involvement in gambling and was first recognized as a psychiatric disorder in 1980 (American Psychiatric Association 1980). Recent changes have been made to the psychiatric criteria for pathological gambling to incorporate empirical research that links pathological gambling to other addictive disorders like alcohol and drug dependence. *The essential features of pathological gambling are a continuous or periodic loss of control over gambling; a progression, in gambling frequency and amounts wagered, in the preoccupation with gambling and in obtaining monies with which to gamble; and a continuation of gambling involvement despite adverse consequences* (American Psychiatric Association 1994).

In prevalence surveys, individuals are categorized as *problem gamblers* or *probable pathological gamblers* on the basis of their responses to the questions included in the South Oaks Gambling Screen (see Appendix B for a discussion of the methods used to assess problem and pathological gambling in the general population). The term *probable* distinguishes the results of prevalence surveys, where classification is based on responses to questions in a telephone interview, from a clinical diagnosis. Respondents scoring three or four out of a possible 20 points on the South Oaks Gambling Screen items are classified as "problem gamblers" while those scoring five or more points are classified as "probable pathological gamblers." In prevalence surveys conducted since 1990, a distinction is also made between "lifetime" and "current" problem and probable pathological gamblers.

Lifetime problem and probable pathological gamblers are individuals who have, at some time in their lives, met the South Oaks Gambling Screen criteria for problem or pathological gambling. *Current* problem and probable pathological gamblers are individuals who have met these criteria in the past year. Not all lifetime problem and probable pathological gamblers meet sufficient criteria to be classified as current problem and probable pathological gamblers. For example, a middle-aged individual who experienced significant gambling-related difficulties in youth but no longer has such difficulties would be referred to as a lifetime problem gambler.

METHODS

Nearly all of the surveys of gambling and problem gambling completed to date have been *baseline* surveys, assessing these behaviors in a jurisdiction for the first time. Baseline prevalence surveys provide estimates of the number of individuals in the general population who have experienced or are experiencing difficulties controlling their involvement in gambling as well as information about the demographic characteristics and gambling activities of these individuals.

The research reported here is a *replication* survey of gambling and problem gambling. Replication surveys permit more precise determinations of the impact of new gaming opportunities on the prevalence of gambling-related problems in a jurisdiction. This information is useful in planning for the availability of gaming opportunities in the future as well as in targeting services for problem gamblers. Replication surveys have been conducted in only a few jurisdictions, including Minnesota and South Dakota (Emerson, Laudergeran & Schaefer 1994; Volberg & Stuefen 1994).

The replication study of gambling and problem gambling in Iowa builds on work carried out since 1985 in the United States, Canada and New Zealand. To ensure comparability with similar surveys conducted elsewhere in the United States as well as with the baseline survey completed in Iowa in 1989, this survey was based on the revised South Oaks Gambling Screen (see Appendix B).

In the first stage of the project, Dr. Volberg consulted with staff from the Iowa Department of Human Services as well as Iowa Field Research, the organization responsible for data collection, regarding the final design of the questionnaire and the stratification of the sample. In the second stage of the project, staff from Iowa Field Research completed telephone interviews with a sample of 1,500 residents of Iowa aged 18 years and older. All interviews were completed between February 23 and March 16, 1995 and the average length of these interviews was 12 minutes. Iowa Field Research then provided Dr. Volberg with the data for the third stage of the project which included analysis of the data and preparation of this report.

Questionnaire

The questionnaire for the replication survey in Iowa was composed of three major sections (see Appendix C for a copy of the questionnaire). The first section included questions about 13 different types of gambling available to residents of the state. For each type of gambling, respondents were asked whether they had ever tried this type of gambling, whether they had tried it in the past year, and whether they participated once a week or more in this type of gambling. Respondents were also asked to estimate their monthly expenditures on those types of gambling that they had tried in the past year. The second section of the questionnaire was composed of the lifetime and current South Oaks Gambling Screen items and the final section of the questionnaire included questions about the demographic characteristics of each respondent.

Sampling

Information about how survey samples are developed is important in assessing the validity and reliability of the results of the survey. While a fully random design is the most desirable approach in developing a representative sample of the population in question, this approach often results in under-sampling particular demographic groups with low rates of telephone ownership. These groups most often include young adults, minorities and individuals with low education and income. Increasingly, researchers use stratified random designs to guard against under-sampling. To determine whether a representative sample was obtained, it is helpful to calculate the response rate for the sample as a whole as well as to examine how closely the sample matches the known demographic characteristics of the population.

Design

The first prevalence survey in Iowa was stratified to proportionally represent county populations. However, men and adults under the age of 30 were under-sampled in this study (Volberg & Steadman 1989). While 48% of the Iowa population in 1989 was male, only 41% of the respondents in the survey were male. While 30% of the Iowa population in 1989 was under the age of 30, only 22% of the respondents in the survey fell into this age group. Since these groups are more likely than others in the general population to experience difficulties related to their gambling, it was considered essential to obtain a sample for the 1995 survey that was fully representative of the general population.

For the 1995 survey, the sample was stratified to proportionally represent county populations, males and young adults in Iowa on the basis of 1990 census figures. To obtain a representative sample, random selection of households and random selection of respondents within households were used for the first two-thirds of the interviews. After completing approximately 1,000 interviews, interviewers began screening potential respondents to identify males between the ages of 18 and 29. Up to five attempts were made to contact each number and an average of two callbacks were required to complete interviews with selected respondents.

Response Rate

The response or completion rate for this survey was calculated by taking the number of completed interviews and dividing it by the number of completes *plus* refusals *plus* partial interviews (including terminations by respondents as well as individuals identified as language-impaired or hearing-impaired by the interviewer). Using this method, the response or completion rate among valid respondents for the Iowa replication survey was 57% which compares well with response rates for similar surveys in recent years. The response rate for the baseline survey in Iowa in 1989 was 76% which compared well with similar surveys conducted in the same time period.

All survey results are subject to margins of error. For data based on the total number of completed interviews in this survey (N=1,500), the margin of error is $\pm 2.5\%$ assuming a 95% confidence interval and assuming that the total proportion of the sample responding in one way or another to the question is relatively large. For example, if 50% of all the respondents surveyed answered a question in a particular way, then we can be sure, nineteen times out of twenty, that if the entire population of Iowa had been interviewed, the proportion of the population answering in the same way would be between 47.5% and 52.5% based on the responses of individuals in the sample.

Representativeness

To determine representativeness, the demographics of the sample were compared with demographic information from the United States Bureau of the Census. Since comparisons are with the 1990 census, some of the differences identified below may be due to changes in the characteristics of the population over the past five years.

TABLE 1
Comparing the Demographics
of the Sample and the General Population

	Sample	Population
Male	47%	47%
Under 25	13%	14%
Non-Caucasian	3%	3%
Not Married	42%	40%
Less than HS	9%	19%
Annual HH Under \$25,000	42%	47%

Table 1 shows that the 1995 sample from Iowa is entirely representative of males, individuals under the age of 25, non-Caucasians and unmarried individuals (including separated, divorced, widowed and never married individuals) in the general population. Table 1 shows that, as is often the case with telephone surveys, respondents with lower levels of education and income are somewhat under-represented.

To determine if education or income discrepancies contributed significantly to estimates of the prevalence of problem gambling in Iowa, prevalence rates were analyzed after weighting the sample by education and then by income. This analysis showed that there was a 0.1% increase in the prevalence of lifetime problem and probable pathological gambling and a 0.1% increase in the prevalence of current problem and probable pathological gambling in Iowa when the sample was weighted by education. Analysis also showed that there was a 0.6% increase in the prevalence of lifetime problem and probable pathological gambling and a 0.2% increase in the prevalence of current problem and probable pathological gambling in Iowa when the sample was weighted by income.

Although these differences are small, they do suggest that the prevalence rates for problem and probable pathological gambling identified in Iowa in 1995 should be viewed as conservative. To maintain comparability with results from the 1989 survey from Iowa, as well as with results from surveys in other United States jurisdictions, it was deemed advisable to caution readers regarding these prevalence estimates rather than weight the results from the 1995 sample.

Data Analysis

For easier comparisons of data from the 1995 survey in Iowa with the results of the 1989 survey as well as with other jurisdictions, detailed demographic data on age, ethnicity, education, income and marital status from the 1995 survey were collapsed into dichotomous variables. For example, age categories were collapsed from six groups into two groups (Under 30 and 30 Plus) for purposes of analysis. Ethnicity was collapsed from six groups (Caucasian/White, Hispanic, Native American, African-American/Black and Other) into two groups (Non-Caucasian and Caucasian).

Marital status was collapsed from five groups (Married, Separated, Divorced, Widowed, Never Married) into two groups (Married and Not Married). Education was also collapsed from five groups into two groups (Less than High School and High School Graduate). Finally, annual household income was collapsed from six groups into two groups (Less than \$25,000 and \$25,000 Plus) for purposes of analysis and comparison.

Chi-square analysis and analyses of variance were used to test for statistical significance. In order to adjust for the large number of statistical tests conducted, p-values smaller than .01 are considered *highly significant* while p-values at the more conventional .05 level are considered *significant*. In reading the tables presented in this report, asterisks in the right-hand column of each table indicate that *one* of the figures in the row or column is significantly different from other figures in the same row or column.

GAMBLING IN IOWA

As in other North American jurisdictions, gambling in Iowa has expanded rapidly in the last decade (see Appendix A). Before 1985, legal gambling in Iowa was restricted to social gambling, bingo, sports pools, parimutuel wagering at dog tracks and a state lottery. By 1994, legal gambling in Iowa had expanded to include parimutuel and simulcast wagering at three dog tracks as well as a horse track, six riverboat casinos with the initial play and win limits lifted, three Native American casinos, and 500 vending machines for instant lottery tickets. The data for this study were collected just prior to the start of slot machine gambling at dog and horse tracks in March, 1995. By 1996, there are expected to be nine riverboat casinos operating in Iowa.

To assess the full range of gambling activities available to Iowa residents, the questionnaire for the survey collected information about 13 different wagering activities. The following types of gambling were included in the questionnaire:

- instant lottery tickets
- other lottery games
- casino table games
- slot machines
- video gaming devices
- live bingo or live keno
- card games for money (not at a casino)
- horses, dogs or other animals
- stock market or commodities futures market
- games of skill for money
- sports events
- office pools, raffles, or charitable small-stakes gambling
- any other type of gambling

Gambling in the General Population

In every recent survey of gambling participation, the great majority of respondents acknowledge participating in one or more of the gambling activities included in the questionnaire. In the United States, the proportion of respondents who have ever gambled ranges from 74% in Georgia to 92% in New Jersey (Volberg 1994a, 1995a). In 1989, 84% of the respondents in Iowa acknowledged participating in one or more of the 10 gambling activities included in the questionnaire. In 1995, 88% of the respondents acknowledged participating in one or more of the gambling activities included in the questionnaire.

Table 2 shows lifetime participation rates for the different types of gambling included in the 1995 survey. Lifetime participation is highest for the state's instant lottery games, slot machines at casinos and wagering on office pools, raffles and charitable small-stakes games. Over half of the respondents acknowledge having ever wagered on these types of gambling. At least one-third of the respondents acknowledge having tried the state's other lottery games as well as wagering on card games for money, on horse or dog races and on live bingo or keno. Lifetime participation is lower for other types of gambling, including wagering on casino table games, sports, electronic gaming devices, games of skill and the stockmarket.

TABLE 2
Lifetime Gambling Participation in Iowa,
1995

Type of Activity	Lifetime (N = 1,500)
Instant Lottery Games	64 %
Slot Machines at Casinos	56 %
Office Pools/Raffles	53 %
Other Lottery Games	45 %
Card Games for \$	40 %
Horse or Dog Races	36 %
Live Bingo or Keno	32 %
Casino Table Games	27 %
Sports	26 %
Video Gaming Devices	26 %
Games of Skill	25 %
Stockmarket	20 %
Other	5 %

Patterns of Gambling Participation

To understand patterns of gambling participation and preferences, it is helpful to examine the demographics and gambling participation of respondents who wager at increasing levels of frequency. To analyze gambling participation, we divide respondents into four groups:

- *non-gamblers* have never participated in any type of gambling (12% of the Iowa sample);
- *infrequent gamblers* have participated in one or more types of gambling but not in the past year (16% of the Iowa sample);
- *past-year gamblers* have participated in one or more types of gambling in the past year but not on a weekly basis (48% of the Iowa sample); and
- *weekly gamblers* participate in one or more types of gambling on a weekly basis (24% of the Iowa sample).

Table 3 shows the demographic differences between non-gamblers, infrequent gamblers, past-year gamblers and weekly gamblers in Iowa as well as differences in the mean number of gambling activities these groups have ever tried.

TABLE 3
Gambling Involvement in Iowa,
1995

	Non-Gamblers (N=175)	Infrequent (N=240)	Past-Year (N=718)	Weekly (N=367)	
Male	29%	41%	46%	62%	**
Under 30	14%	11%	27%	29%	**
Non-Caucasian	6%	2%	3%	5%	*
Not Married	47%	38%	41%	43%	
Less than HS	22%	10%	7%	8%	**
HH Income					
Under \$25,000	68%	49%	39%	33%	**
Mean Number of Lifetime					
 Gambling Activities	0.0	2.40	5.13	7.07	**

* Significant ($p \leq .05$)

** Highly significant ($p \leq .01$)

Table 3 shows that weekly gamblers in Iowa are significantly more likely than other gamblers and non-gamblers to be male. Weekly and past-year gamblers are significantly more likely than non-gamblers and infrequent gamblers to be under the age of 30 and to have annual household incomes over \$25,000. It is interesting to note that weekly gamblers, on the one hand, and non-gamblers, on the other hand, are the groups most likely to include non-Caucasian respondents. Table 3 also shows that the *number* of gambling activities that gamblers have ever tried increases significantly with increased levels of participation.

In general in Iowa, men are more likely than women to have wagered on games of skill, sports, card games for money, casino table games and the stockmarket. Respondents under the age of 30 are more likely than older respondents to have wagered on games of skill, sports and video gaming devices. Like younger respondents, non-Caucasian respondents are more likely than Caucasian respondents in Iowa to have wagered on games of skill and sports.

Respondents with at least a high school education are more likely than those without a high school diploma to have wagered on the stockmarket and on casino table games. The same pattern is true for respondents with annual household incomes over \$25,000; these individuals are more likely than individuals with lower income to have wagered on the stockmarket and on casino table games. Finally, married respondents are more likely to have wagered on horse or dog races and on the stockmarket while respondents who are not married are more likely to have wagered on games of skill.

Expenditures on Gambling

Reported estimates of expenditures obtained in this and similar surveys are based on recollection and self-report. These estimates do not include amounts spent on gambling within a jurisdiction by non-residents and tourists. Data on reported expenditures are best suited for analyzing the relative importance of different types of gambling among a jurisdiction's residents rather than for ascertaining absolute spending levels on different types of wagering.

To determine expenditures on gambling in the general population, the *total monthly expenditure* for each gambling activity is calculated by summing the amount of money reported spent by each respondent on each gambling activity. The total amount spent in a typical month by all respondents on all gambling activities is then calculated. The *proportion* of the total monthly expenditure spent on each gambling activity is calculated by dividing the amount spent on each activity by the total monthly expenditure. The total monthly expenditure on all gambling activities is divided by the total number of respondents in the survey to obtain an average amount spent per respondent.

Adjustments to Expenditures

In calculating the reported total monthly expenditure on gambling for Iowa, expenditures on stocks and speculative investments were excluded from the calculation. Stocks and speculative investments are not universally regarded as a gambling activity. Further, in Iowa, speculative investments are often used as hedges in a heavily agricultural economy. Excluding amounts spent on stocks and speculative investments was done in order to clearly explicate the relative gambling expenditures of the majority of Iowa respondents. This adjustment was also made to allow comparisons of expenditure data from Iowa with data from other United States jurisdictions.

In every jurisdiction where similar surveys have been completed, amounts spent on stocks and speculative investments reflect large amounts of money spent by a relatively small number of respondents. Amounts spent on stocks and speculative investments in Iowa constituted 90% of the unadjusted total monthly expenditure although only 11% of the respondents had participated in this type of activity in the past year.

Variations in Expenditures

Using the approach detailed above, we calculate that respondents in Iowa (N=1,500) spent an average of \$40 per month or \$480 per year on gambling activities in the year prior to the survey. It is worth reiterating that reported expenditures on gambling are based on recollection and self-report and should not be regarded as reflections of actual spending on different types of gambling in a jurisdiction.

As in other jurisdictions, there are statistically significant differences in monthly expenditures on gambling across demographic groups. In Iowa, men estimate that they spend twice as much money on gambling (\$54 per month) as women (\$27 per month). Respondents under the age of 30 also estimate that they spend more on gambling (\$63 per month) than respondents over the age of 30 (\$32 per month). Non-Caucasian respondents estimate that they spend more on gambling (\$96 per month) than Caucasian respondents (\$37 per month). Finally, unmarried respondents estimate that they spend more on gambling (\$51 per month) than married respondents (\$31 per month).

Table 4 shows total reported monthly expenditures on different types of gambling in Iowa as well as the proportion that each type of expenditure represents of total adjusted monthly expenditures on gambling. Only those types of gambling for which total monthly expenditures exceeded 1% of the total monthly expenditure are shown.

TABLE 4
Reported Monthly Expenditures on Gambling
(N=1,500)

Type of Gambling Activity	Monthly Expenditure	Percentage of Total
Slot Machines at Casinos	\$ 14,002	23%
Casino Table Games	\$ 10,250	17%
Instant Lottery Games	\$ 6,548	11%
Games of Skill	\$ 5,997	10%
Card Games for \$	\$ 4,600	8%
Sports	\$ 3,988	7%
Live Bingo or Keno	\$ 3,687	6%
Other Lottery Games	\$ 3,338	6%
Video Gaming Devices	\$ 2,867	5%
Horse or Dog Races	\$ 2,387	4%
Office Pools/Raffles	\$ 1,773	3%
Total	\$ 59,607	100%

Table 4 shows that spending on slot machines and table games at casinos and on card games for money accounts for 48% of reported total monthly expenditures on gambling among Iowa respondents. Spending on state lottery games accounts for 17% of the reported total monthly

expenditures on gambling while spending on parimutuel events, bingo and social games accounts for 13% of reported total monthly expenditures. Expenditures on illegal gambling activities, including games of skill, and sports events accounts for another 17% of reported total monthly expenditures on gambling among Iowa respondents.

As in other jurisdictions (see Appendix D for detailed comparisons of Iowa with other jurisdictions), the majority of respondents in Iowa report spending rather small amounts on gambling per month. Over half of respondents in Iowa (55%) report spending less than \$10 on gambling in a typical month. Another third of the respondents (35%) report spending between \$10 and \$99 on gambling in a typical month and only 9% of the respondents report spending \$100 or more on gambling in a typical month. However, this small group of respondents account for 70% of reported monthly expenditures on gambling in Iowa.

Like weekly gamblers, respondents in the highest spending group in Iowa are significantly more likely to be male, under the age of 30, non-Caucasian and unmarried than respondents in the lower spending groups. These higher spending respondents are also significantly more likely to have graduated from high school, to be employed, and to have annual household incomes over \$25,000 than respondents who spend less on gambling.

Summary

In 1995, the majority of the respondents in Iowa acknowledged participating in one or more types of gambling at some time. While lifetime participation in gambling in 1995 is not much higher than lifetime participation in 1989, the difference is significant. Lifetime participation in Iowa in 1995 is highest for slot machines, instant lottery games and social gambling. Young non-Caucasian men with relatively high levels of education and income are the respondents most likely to have ever gambled in Iowa.

As with gambling participation, young non-Caucasian men are most likely to report spending the largest amounts of money on gambling. The small group of respondents with the highest reported gambling expenditures are significantly more likely than respondents who spend less to be young, unmarried non-Caucasian men with relatively high levels of education and income. In terms of expenditures, their favorite types of gambling include casino slot machines and table games as well as instant lottery games.

In this section, we have examined patterns of gambling participation in the sample as a whole. Overall, the patterns of gambling participation identified in Iowa are similar to patterns identified in other jurisdictions (see Appendix D). In the next section, we turn our attention to the prevalence of problem and probable pathological gambling in the sample as a whole.

PREVALENCE OF PROBLEM AND PATHOLOGICAL GAMBLING IN IOWA

Following established criteria for discriminating between respondents without gambling-related difficulties and those with moderate to severe problems (Abbott & Volberg 1991; Lesieur & Blume 1987), Iowa respondents' scores on the lifetime and current (past-year) South Oaks Gambling Screen items were tallied. In accordance with these criteria, prevalence rates were calculated as follows (see also Table 17):

- *lifetime problem gamblers* are those respondents who score 3 or 4 points on the lifetime SOGS items. In Iowa, 3.5% ($\pm 0.9\%$) of the respondents scored as lifetime problem gamblers.
- *lifetime probable pathological gamblers* are those respondents who score 5 or more points on the lifetime SOGS items. In Iowa, 1.9% ($\pm 0.6\%$) of the respondents scored as lifetime probable pathological gamblers.
- *current problem gamblers* are those respondents who score 3 or 4 points on the past year SOGS items. In Iowa, 2.3% ($\pm 0.7\%$) of the respondents scored as current problem gamblers.
- *current probable pathological gamblers* are those respondents who score 5 or more points on the past year SOGS items. In Iowa, 1.0% ($\pm 0.5\%$) of the respondents scored as current probable pathological gamblers.

Lifetime Prevalence

According to the 1990 census, the population aged 18 and over in Iowa is 2,057,575 individuals. Based on these figures, we estimate that between 53,500 and 90,500 Iowa residents aged 18 and over can be classified as lifetime problem gamblers. In addition, we estimate that between 26,700 and 51,400 Iowa residents aged 18 and over can be classified as lifetime probable pathological gamblers.

Table 5 shows that lifetime problem and probable pathological gamblers in Iowa are significantly more likely than other respondents in the sample to be male, under the age of 30, non-Caucasian and unmarried. There are no significant differences between lifetime problem and probable pathological gamblers and the remainder of the sample in terms of education or income.

TABLE 5
Comparing Lifetime Problem Gamblers
with Non-Problem Respondents

Demographics	Non-Problem Respondents (N=1,419)	Problem & Pathological Gamblers (N=81)	
Male	46%	68%	**
Under 30	21%	64%	**
Non-Caucasian	3%	14%	**
Not Married	41%	61%	**
Less than HS	9%	11%	
HH Income Under \$25,000	42%	40%	

* Significant ($p \leq .05$)
 ** Highly significant ($p \leq .01$)

Current Prevalence

Based on current prevalence and 1990 census information, we estimate that between 32,900 and 61,700 Iowa residents aged 18 and over can be classified as current problem gamblers. In addition, we estimate that between 10,300 and 30,900 Iowa residents aged 18 and over can be classified as current probable pathological gamblers.

Table 6 shows that the differences between respondents who scored as lifetime problem or probable pathological gamblers and the remainder of the sample in Iowa hold true for current problem and probable pathological gamblers. Indeed, current problem and probable pathological gamblers are even more likely to be under the age of 30 than lifetime problem and probable pathological gamblers in Iowa.

In Table 6, lifetime problem and probable pathological gamblers are grouped together as are current problem and probable pathological gamblers. This is based on discriminant analysis that established a strong and significant separation between non-problem gamblers and those who score as problem and probable pathological gamblers (Abbott & Volberg 1995; Volberg & Abbott 1994). The "lifetime problem" and the "current problem" groups in Table 6 include problem and probable pathological gamblers.

TABLE 6
Comparing Lifetime and Current Problem Gamblers
with Non-Problem Respondents

Demographics	Total Sample (N=1,500)	Lifetime Non-Problem (N=1,419)	Lifetime Problem (N=81)	Current Non-Problem (N=1,451)	Current Problem (N=49)
Male	47%	46%	68%	46%	65%
Under 30	13%	21%	64%	22%	69%
Non-Caucasian	3%	3%	14%	3%	15%
Not Married	42%	41%	61%	41%	58%
Less than HS	9%	9%	11%	9%	12%
Annual HH Under \$25,000	42%	42%	40%	42%	36%

Comparing Problem Gambling Across States

The jurisdictions where gambling and problem gambling surveys have been done in the United States differ substantially in the types of gambling available, in levels of gambling participation and in the demographic characteristics of the general population. To facilitate comparisons across jurisdictions, *cross-jurisdictional averaging* and *cross-temporal averaging* are used to extricate patterns in prevalence rates across jurisdictions and over time.

Cross-jurisdictional averaging is done by adding prevalence rates of jurisdictions in different regions of the United States and then dividing the total by the number of jurisdictions in each region. Cross-temporal averaging is done by adding prevalence rates for jurisdictions in different regions where surveys were done at approximately the same time and then dividing the total by the number of jurisdictions in each region.

Cross-jurisdictional averaging is used to account for the impact of regional variations in gambling availability on reported prevalence rates. In general, Central and Midwestern states are jurisdictions where gambling has only recently been legalized. In the Northeast and West, legalized gambling has been available far longer. Central and Midwestern states tend to have lower prevalence rates of problem and probable pathological gambling than states in the Northeast and West. The cross-jurisdictional lifetime prevalence for Midwestern and Central states is 2.8% compared to 4.6% for Northeastern and Western states.

Cross-temporal averaging is used to account for the possible impact of heightened public awareness of problem gambling since the early 1990s on reported prevalence rates. In general, prevalence rates among states surveyed in 1990 and earlier tend to be lower than prevalence rates among states surveyed after 1990. Among states surveyed in 1990 and earlier, the average lifetime prevalence rate is 2.1% in the Central and Midwestern states compared to 4.2% among Northeast and Western states. Among states surveyed in 1991 and later, the average lifetime prevalence rate is 3.3% in the Central and Midwestern states compared to 5.4% among Northeast and Western states.

Table 7 shows prevalence rates of lifetime and current problem and probable pathological gambling in all of the United States jurisdictions where surveys based on the South Oaks Gambling Screen have been completed. Clearly, both the lifetime and current prevalence rates in Iowa in 1995 are higher than in most other states while the current prevalence rate in Iowa is equal to the average for Northeast and Western states surveyed since 1990.

TABLE 7
Prevalence of Problem Gambling
Across Jurisdictions

Year	State	Lifetime Prevalence	Current Prevalence
Northeast			
1986	New York	4.2%	---
1988	New Jersey	4.2%	---
1988	Maryland	3.9%	---
1989	Massachusetts	4.4%	---
1991	Connecticut	6.3%	---
Midwest & Central			
1989	Iowa	1.7%	---
1990	Minnesota ¹	2.4%	1.5%
1991	South Dakota	2.8%	1.4% ²
1992	Montana	3.6%	2.2%
1992	North Dakota	3.5%	2.0%
1995	Iowa	5.4%	3.3%
West			
1990	California	4.1%	---
1992	Texas	4.8%	2.5%
1992	Washington State	5.1%	2.8%
South			
1994	Georgia	4.4%	2.3%
1995	Louisiana	7.0%	4.8%

¹ In Minnesota, current (past year) prevalence data were subsequently adjusted for an estimated lifetime prevalence rate (Laudergan 1992).

² In South Dakota, a 6-month timeframe was used for the current South Oaks Gambling Screen items.

Surveys completed recently in two Southern states, Georgia and Louisiana, shed additional light on the impact of the availability of legalized gambling on prevalence rates of problem and probable pathological gambling (Volberg 1995a, 1995c). In Georgia, as in Texas, there was little or no legalized gambling at the time of the surveys. The results of these two surveys suggest that there is an underlying prevalence rate of problem gambling, even in jurisdictions without legalized gambling. In Louisiana, as in Iowa in 1995, the availability of legalized gambling expanded very rapidly in a short period of time. The results of the survey in Louisiana, along with Iowa in 1995, suggest that rapid increases in the availability of legalized gambling can add substantially to an underlying prevalence rate of problem gambling in the general population.

Summary

In Iowa, 3.5% ($\pm 0.9\%$) of the respondents scored as lifetime problem gamblers and an additional 1.9% ($\pm 0.6\%$) of the respondents scored as lifetime probable pathological gamblers. In Iowa, 2.3% ($\pm 0.7\%$) of the respondents scored as current problem gamblers while 1.0% ($\pm 0.5\%$) of the respondents scored as current probable pathological gamblers. *At a minimum*, there are 10,300 Iowa residents aged 18 and over who are currently experiencing severe difficulties related to their gambling involvement. Both lifetime and current prevalence of problem and probable pathological gambling in Iowa in 1995 are higher than in most other states where similar surveys have been completed.

In Iowa in 1995, lifetime problem and probable pathological gamblers are significantly more likely than other respondents to be male, under the age of 30, non-Caucasian and unmarried. Current problem and probable pathological gamblers are even more likely to be under the age of 30 than lifetime problem and probable pathological gamblers in Iowa.

In this section, we have examined the prevalence of problem and probable pathological gambling among respondents in the 1995 survey. Here, and in the first section of the report, our focus has been on the entire sample of 1,500 respondents. In the next section, we turn our attention to differences between non-problem and problem gamblers in the 1995 Iowa survey. Only those respondents who acknowledged involvement in one or more types of gambling ($N=1,325$) are included in analyses of the differences between non-problem and problem gamblers in the following section.

COMPARING NON-PROBLEM AND PROBLEM GAMBLERS IN IOWA

The primary purpose of the study reported here was to examine the impact of the introduction of new types of legalized gambling on the prevalence of gambling-related problems among the adult population in Iowa. The second major purpose of this study was to analyse information from the survey to assist in the further development of services for individuals in Iowa with gambling-related difficulties.

In considering the development of policies and programs for problem gamblers, it is important to direct these efforts in an effective and efficient way. The most effective efforts at prevention, outreach and treatment are targeted at individuals who are at greatest risk of experiencing gambling-related difficulties. Since the purpose of this section is to identify individuals at risk, our focus will be on differences between individuals who gamble, with and without problems (N=1,325), rather than on the entire sample.

In addition to looking only at respondents who gamble, our analysis in this section is limited to differences between non-problem gamblers and lifetime problem and probable pathological gamblers. The reasons for this approach are outlined in Appendix B. Finally, as we noted above, there is a strong statistical separation between non-problem gamblers and those who score as lifetime problem and probable pathological gamblers (Abbott & Volberg 1995; Volberg & Abbott 1994). Since problem and probable pathological gamblers are statistically associated, these respondents are treated as a single group in this section and are referred to as problem gamblers.

Demographics of Non-Problem and Problem Gamblers

Table 8 shows that, as in other jurisdictions, problem gamblers are demographically distinct from non-problem gamblers in the sample. Problem gamblers in Iowa are significantly more likely than non-problem gamblers to be male, under the age of 30, non-Caucasian and unmarried.

TABLE 8
Demographics of Non-Problem and Problem Gamblers
in Iowa

Demographics	Non-Problem Gamblers (N=1,244)	Problem Gamblers (N=81)	
Male	48%	68%	**
Under 30	22%	64%	**
Non-Caucasian	2%	14%	**
Not Married	40%	61%	**
Less than HS	7%	11%	
HH Income Under \$25,000	39%	40%	
<hr/>			
*	Significant ($p \leq .05$)		
**	Highly significant ($p \leq .01$)		

While information about the demographic characteristics of problem gamblers is useful, it is also helpful to understand more about the gambling behavior of non-problem and problem gamblers. Information about the behavioral correlates of problem gambling can help policy-makers and gaming regulators develop effective measures to mitigate the negative impacts of future gambling legalization. This information is also useful to treatment professionals seeking effective methods to identify at-risk individuals for gambling-related difficulties.

Weekly Gambling by Non-Problem and Problem Gamblers

Behavioral correlates of problem gambling include regular gambling and involvement with continuous forms of gambling (Dickerson 1993; Ladouceur, Gaboury, Dumont & Rochette 1988; Walker 1992). Regular gambling is defined as weekly or more frequent involvement in one or more types of gambling. *Continuous* forms of gambling are characterized by rapid cycles of play as well as the opportunity for players to immediately reinvest their winnings. Legal forms of continuous gambling in Iowa include slot machines as well as table games at casinos, card games for money and instant lottery games. Illegal forms of continuous gambling include wagering on games of skill as well as sports wagering.

Table 9 shows differences in the weekly involvement in different types of wagering by non-problem and problem gamblers. Although weekly participation rates in every type of gambling are significantly higher for problem gamblers than for non-problem gamblers in Iowa, the number of respondents involved in each type of gambling can be extremely small. Only those types of gambling for which weekly participation among problem gamblers is 10% or higher (N=8) are shown.

TABLE 9
Weekly Gambling Involvement
of Non-Problem and Problem Gamblers

Games Played Weekly	Non-Problem Gamblers (N = 1,244)	Problem Gamblers (N = 81)	
Instant Lottery Games	13%	33%	**
Other Lottery Games	8%	31%	**
Games of Skill	5%	17%	**
Card Games for \$	3%	15%	**
Sports	1%	17%	**
Weekly Gambling (1+ activities)	25%	62%	**

* Significant ($p \leq .05$)

** Highly significant ($p \leq .01$)

Table 9 shows that problem gamblers in Iowa are most likely to gamble weekly on *continuous* types of gambling, including instant lottery games, games of skill, card games for money and sports.

Table 9 also shows that a significantly greater proportion of problem gamblers in Iowa gamble weekly or more often than non-problem gamblers.

Expenditures of Non-Problem and Problem Gamblers

Another important behavioral correlate of problem gambling is heavy gambling losses (Dickerson 1993). Although gambling losses should be considered relative to income, comparisons of reported gambling expenditures of non-problem and problem gamblers provide insight into the far greater financial impact of gambling involvement on problem gamblers and their families.

Table 10 shows differences in the average reported monthly expenditures on gambling for non-problem and problem gamblers in Iowa. Although expenditures on every type of gambling are significantly higher for problem gamblers than for non-problem gamblers in Iowa, only those types of gambling for which expenditures among problem gamblers exceeded those of non-problem gamblers by \$10 or more per month are shown.

TABLE 10
Average Monthly Expenditures
of Non-Problem and Problem Gamblers

Type of Gambling Activity	Non-Problem Gamblers (N=1,244)	Problem Gamblers (N=81)	
Casino Table Games	\$ 5.08	\$ 48.58	**
Slot Machines at Casinos	\$ 9.44	\$ 27.83	*
Sports	\$ 1.80	\$ 21.62	**
Card Games for \$	\$ 2.34	\$ 20.83	**
Instant Lottery Games	\$ 3.98	\$ 19.78	**
Games of Skill	\$ 3.84	\$ 14.99	**
Horse or Dog Races	\$.99	\$ 14.26	**
Total Monthly Expenditures on Gambling	\$ 35.09	\$ 196.99	**

* Significant ($p \leq .05$)

** Highly significant ($p \leq .01$)

Table 10 shows that there are significant differences greater than \$10 per month between non-problem and problem gamblers in average expenditures on casino table games, slot machines at casinos, sports, card games for money, instant lottery games, games of skill and horse or dog races. All of these types of gambling are considered *continuous* forms of gambling. Table 10 also shows that average total monthly expenditures on gambling are significantly higher for problem gamblers than for non-problem gamblers in Iowa.

In our discussion of gambling expenditures in the total sample, we identified a small proportion of respondents (9%) who reported spending \$100 or more on gambling in a typical month (see Page 12, 22). This small group of respondents accounted for 70% of reported monthly expenditures on gambling in Iowa. In considering risk factors associated with problem gambling, it is worth noting that a substantial proportion of the lifetime problem and probable pathological gamblers in Iowa (42%) fall into this heavy-spending group.

Other Significant Differences

There are several additional significant differences between non-problem and problem gamblers in Iowa. Table 11 shows that the mean age at which problem gamblers started gambling is significantly younger than the mean age at which non-problem gamblers started. Table 11 also shows that problem gamblers are significantly more likely than non-problem gamblers to have felt nervous about their gambling and to have felt that one or both parents had a gambling problem.

TABLE 11
Other Significant Differences Between
Non-Problem and Problem Gamblers

	Non-Problem Gamblers (N=1,244)	Problem Gamblers (N=81)	
Mean age started gambling	27	20	**
Ever felt nervous about gambling?	10%	56%	**
Parent ever had problem w/gambling?	4%	16%	**
Time Spent Gambling Per Session			**
< 1 hour to 2 hours	85%	52%	
3 hours to 5 hours	13%	35%	
6 or more hours	2%	14%	
Largest Amount Wagered in One Day			**
Less than \$10	33%	6%	
\$10 - \$99	53%	38%	
\$100 or more	14%	56%	
<hr/>			
*	Significant ($p \leq .05$)		
**	Highly significant ($p \leq .01$)		

Table 11 also shows that there are significant differences between non-problem and problem gamblers in Iowa in terms of the time and resources that they devote to gambling. Problem gamblers are significantly more likely than non-problem gamblers to spend three or more hours gambling per session and to have wagered \$100 or more in a single day. A chi-square test was used to establish significance for these two variables. In assessing the results of this analysis, we remind readers that asterisks indicate a statistically significant separation for *all* of the values included in the test.

Comparing Non-Problem and Problem Gamblers Across States

In contrast to variations in the prevalence of problem and probable pathological gambling across states (see Table 7), individuals with gambling-related difficulties are strikingly similar across jurisdictions. This is true regardless of the availability of legalized gambling in a jurisdiction or the rate of gambling participation.

The following discussion is based on data from respondents in jurisdictions where detailed information on gambling and problem gambling has been collected. In the United States, these jurisdictions include Montana, South Dakota, North Dakota, Texas and Washington State. Data from these jurisdictions has been merged and organized to match demographic, gambling involvement and problem gambling variables from each jurisdiction (see Appendix D for detailed comparisons of Iowa with these jurisdictions).

Data from surveys in California, Connecticut, Iowa in 1989, Maryland, Massachusetts, Minnesota, New Jersey and New York are limited to assessments of lifetime participation and prevalence. While detailed information on gambling participation as well as lifetime and current prevalence is available from Georgia and Louisiana, these surveys were completed too recently to incorporate into the analysis.

Demographics. As in Iowa, problem gamblers in other jurisdictions are demographically distinct from non-problem gamblers in the larger samples. Table 12 shows that problem gamblers in Montana, North Dakota, South Dakota, Texas and Washington State are significantly more likely than non-problem gamblers to be male, under the age of 30, non-Caucasian and unmarried.

TABLE 12
Demographics of Non-Problem and Problem Gamblers
in Other States

Demographics	Non-Problem Gamblers (N=9,103)	Problem Gamblers (N=507)	
Male	48%	60%	**
Under 30	20%	37%	**
Non-Caucasian	16%	34%	**
Not Married	37%	53%	**
Less than HS	12%	17%	**
Mean age started gambling	29	21	**

* Significant ($p \leq .05$)

** Highly significant ($p \leq .01$)

Comparison of Iowa with other jurisdictions (see Appendix D) shows that problem gamblers in Iowa are substantially more likely to be male, under the age of 30 and unmarried than problem

gamblers in other jurisdictions. Problem gamblers in Iowa are substantially less likely than problem gamblers in other jurisdictions to be non-Caucasian and to have left school before graduating from high school. Like problem gamblers in other jurisdictions, problem gamblers in Iowa recall starting to gamble at a significantly earlier age than non-problem gamblers in the larger samples.

Weekly Gambling. As in Iowa, problem gamblers in other jurisdictions are significantly more likely than non-problem gamblers to gamble regularly. In other jurisdictions, an average of 19% of non-problem gamblers participate weekly in one or more gambling activities while 52% of problem gamblers do so. We have already reported that 25% of non-problem gamblers in Iowa participate weekly in one or more gambling activities while 62% of problem gamblers do so (see Table 9 as well as Appendix D).

Expenditures on Gambling. As in Iowa, average monthly expenditures on gambling are significantly higher for problem gamblers than for non-problem gamblers in other jurisdictions. In other jurisdictions, non-problem gamblers estimate that they spend an average of \$66 per month on gambling while problem gamblers estimate that they spend an average of \$302 per month. We have already reported that non-problem gamblers in Iowa estimate that they spend an average of \$35 per month on all types of gambling while problem and pathological gamblers estimate that they spend an average of \$197 per month (see Table 10 as well as Appendix D).

While gambling expenditures are lower in Iowa than in other jurisdictions for both non-problem and problem gamblers, the ratio of expenditures by problem gamblers is higher in Iowa than in other jurisdictions. While problem gamblers in other jurisdictions spend 4.6 times more than non-problem gamblers, problem gamblers in Iowa spend 5.6 times more than non-problem gamblers. Expenditures on casino table games, sports, card games for money and instant lottery games are the major contributors to the higher ratio of problem to non-problem gambling expenditures in Iowa.

Summary

Our focus in this section has been on the risk factors associated with problem gambling in the general population. To identify these risk factors, we compared problem and non-problem gamblers in Iowa as well as in other jurisdictions where similar surveys have been completed. As predicted by the research literature, regular gambling involvement, in particular with continuous forms of gambling, and heavy gambling losses are the factors associated with gambling-related difficulties in Iowa as well as in other jurisdictions.

Problem gamblers in Iowa are most likely to gamble weekly on *continuous* types of gambling, including instant lottery games, games of skill, card games for money and sports. Problem gamblers are significantly more likely to spend substantial amounts on continuous types of gambling, including casino table games, slot machines at casinos, sports, card games for money, instant lottery games, games of skill and wagering on horse or dog races. Indeed, expenditures on casino table games, sports, card games for money and instant lottery games are the major contributors to the higher ratio of problem to non-problem gambling expenditures in Iowa.

Based on differences between non-problem and problem gamblers in Iowa, it is clear that while preventive, outreach and treatment efforts should aim to reach a variety of groups, these efforts could most fruitfully be directed at young, non-Caucasian males who are spending substantial amounts of time

and money wagering on continuous types of gambling in Iowa. Preventive and outreach efforts should be aimed at specific gaming venues, including instant lottery vendors and casinos where table games, card games and slot machines are located.

In this section, we have identified several major risk factors associated with gambling-related difficulties among respondents in Iowa. Our focus here has been on respondents who acknowledge gambling, whether or not they experience difficulties related to this involvement. In the next section, we will examine changes in gambling participation and problem gambling prevalence in Iowa. Our focus in this next section will be on similarities and differences between the entire samples from the 1989 and 1995 surveys of gambling and problem gambling in Iowa.

COMPARING THE 1989 AND 1995 SURVEYS IN IOWA

In April, 1988, the National Institute of Mental Health funded a proposal to conduct prevalence surveys of gambling and problem gambling in five states, including Iowa. A telephone survey in Iowa was carried out in December, 1988 with a random sample of 750 residents of Iowa aged 18 and over (Volberg 1994a, 1995b). Since the baseline survey in Iowa included only lifetime measures of gambling and prevalence, it is only possible to compare the results of the Iowa baseline and replication surveys in terms of these lifetime measures. In future research, it will be important to collect and analyze data on current problem and pathological gamblers in Iowa (see Appendix B).

In this section, we first examine similarities and differences in the questionnaires and sampling designs used in the 1989 and 1995 surveys. We then compare lifetime gambling involvement and problem gambling prevalence rates in 1989 and 1995. In addition to examining changes in the lifetime prevalence rate of problem and probable pathological gambling, we look at differences in responses to specific items from the South Oaks Gambling Screen to determine where and how quickly changes in problem gambling prevalence are taking place.

Comparing the Questionnaires

We noted in the Methods section that the questionnaire for the 1995 survey included three major sections: gambling participation, the lifetime and current South Oaks Gambling Screen and demographic items. The 1989 survey included the same three major sections although questions about gambling participation only assessed lifetime participation for 10 different types of gambling. The second major section of the 1989 questionnaire included the lifetime South Oaks Gambling Screen and five questions, added by the Iowa Department of Human Services, about respondents' gambling careers. The third section of the 1989 questionnaire included the same demographic items used in the 1995 questionnaire.

Care was taken in designing the questionnaire for the 1995 survey to ensure that respondents' lifetime involvement in different types of gambling could be compared with the earlier survey. Table 13 shows how the different types of gambling included in the 1995 survey were matched to the types of gambling included in the 1989 survey:

TABLE 13
Types of Gambling Included in Iowa Surveys,
1989 and 1995

1989	1995
Lottery	Instant Lottery Games Other Lottery Games
Machines	Slot Machines at Casinos Video Gaming Devices
Casino	Casino Table Games
Bingo	Live Bingo or Keno
Cards	Card Games for Money
Horse or Dog Races	Horse or Dog Races
Stockmarket	Stockmarket
Games of Skill	Games of Skill
Sports	Sports
Dice	-----
-----	Office Pools/Raffles/Charitable

Table 13 shows that greater detail on lottery participation was assessed in 1995 than in 1989. In 1995, wagering on gaming machines was assessed separately for slot machines at casinos and for video gambling devices. Participation in dice games was not included in the 1995 survey because of beliefs that a separate category for dice games would overlap with the category for casino table games and confuse respondents. Participation in office pools, raffles and charitable small-stakes gambling was added to the 1995 survey.

Comparing the Samples

To assess the magnitude of changes in gambling and problem gambling in Iowa accurately, it is essential to identify differences in the characteristics of the samples from the surveys in 1989 and 1995. We noted in the Methods section that the 1989 prevalence survey under-sampled men and individuals under the age of 30. It seemed possible that the rates of gambling participation and problem gambling prevalence identified in 1989 would have been higher than reported if the sample had been fully representative of the general population in Iowa.

To evaluate the impact of sampling differences on the results of the 1989 survey, the sample was weighted by sex and age. Weighting of the 1989 sample caused no substantial changes in overall lifetime gambling involvement, in involvement in specific types of gambling or in the lifetime prevalence of problem and probable pathological gambling. Indeed, the lifetime prevalence of problem and probable pathological gambling increased by only 0.2% when the sample was weighted for sex and age. Our conclusion is that the under-sampling of males and young adults in the 1989 survey in Iowa had little impact on the reported rates of gambling participation and problem gambling prevalence.

Table 14 shows that the two samples are significantly different along several demographic dimensions. Given our efforts to obtain representation of men and young adults, it is not surprising that respondents in the 1995 sample are significantly more likely to be male than respondents in the 1989 sample. Respondents in the 1995 sample are significantly less likely to be married and more likely to have graduated from high school and to have annual household incomes over \$25,000 than respondents in the 1989 sample.

TABLE 14
Demographic Characteristics of
Respondents in Iowa,
1989 and 1995

Demographics	1989 (N=750)	1995 (N=1,500)	
Male	41 %	47 %	**
Under 30	22 %	23 %	
Non-Caucasian	3 %	3 %	
Not Married	36 %	42 %	**
Less than HS	13 %	9 %	**
HH Income Under \$25,000	50 %	42 %	**

* Significant ($p \leq .05$)
** Highly significant ($p \leq .01$)

Differences between the two samples in marital status, education and income are probably the result of demographic trends that affect the entire population of the United States. For example, the lower proportion of married respondents in 1995 is probably the result of a greater proportion of young men in the sample, since these respondents are less likely to be married than other respondents.

Differences in education are partly explained by the aging of the population and, possibly, by mortality rates among the oldest individuals in the general population who are the least likely to have finished high school. Differences in income levels are probably due to several factors. Perhaps most importantly, there was no effort to adjust income categories for inflation during the replication survey. The result of such an adjustment would have been to move a proportion of respondents in the 1995 sample into lower income categories.

Changes in Gambling Involvement

In 1989, 84% of the respondents acknowledged participation in one or more of the 10 gambling activities included in the questionnaire. In 1995, 88% of the respondents acknowledged participation in one or more of the 13 gambling activities included in the questionnaire. This increase in lifetime gambling participation is statistically significant.

Table 15 shows the proportion of respondents in 1989 and 1995 who acknowledge ever participating in different types of gambling in Iowa. In addition to the significant increase in overall lifetime participation in gambling, there are significant increases in participation in specific types of gambling. The greatest increases are for gambling on machines (which includes slot machines in casinos as well as video gaming machines in the 1995 survey), on games of skill and on the stockmarket. The only type of gambling that respondents in the 1989 survey were more likely than respondents in the 1995 survey to have ever tried is casino gambling and this difference may be due to respondents' belief in the earlier survey that casino gambling included slot machines in casinos.

TABLE 15
Lifetime Gambling Participation Rates,
1989 and 1995

Type of Activity	1989 (N=750)	1995 (N=1,500)	
Lottery	67%	71%	*
Machines	37%	60%	**
Casino	31%	27%	*
Bingo	31%	32%	
Cards	39%	40%	
Horse or Dog Races	33%	36%	
Stockmarket	13%	20%	**
Games of Skill	19%	25%	**
Sports	24%	26%	

* Significant ($p \leq .05$)
** Highly significant ($p \leq .01$)

In addition to increases in lifetime gambling participation and in specific types of gambling, the number of types of gambling that respondents ever tried also increased significantly from 1989 to 1995. In 1989, 14% of the respondents had ever participated in six or more types of gambling. In 1995, 21% of the respondents acknowledged participating in six or more types of gambling.

As with the entire samples, there are significant differences in the demographic characteristics of respondents who had ever gambled in the two surveys. Table 16 shows that gamblers in the 1995 survey are significantly more likely to be male and unmarried than gamblers in the 1989 survey. Gamblers in the 1995 survey are also significantly more likely to have graduated from high school and to have annual household incomes over \$25,000 than gamblers in the 1989 survey.

TABLE 16
Demographic Characteristics of
Gamblers in Iowa,
1989 and 1995

Demographics	1989 (N=628)	1995 (N=1,325)	
Male	43%	49%	**
Under 30	23%	25%	
Non-Caucasian	2%	3%	
Not Married	36%	41%	*
Less than HS	12%	8%	**
HH Income Under \$25,000	48%	39%	**

* Significant ($p \leq .05$)

** Highly significant ($p \leq .01$)

Changes in Problem Gambling Prevalence

In 1989, we reported that 1.7% of the respondents in the sample scored as lifetime problem and probable pathological gamblers in Iowa (Volberg & Steadman 1989). We noted above that if the 1989 sample is weighted to accurately reflect the proportions of males and adults under the age of 30 in the general population at that time, the prevalence of lifetime problem and probable pathological gambling increases to 1.9%.

The 1989 baseline survey included only 750 respondents and, given the low prevalence rate of lifetime problem and probable pathological gambling in Iowa at that time, it was deemed necessary to collapse the respondents who scored as problem gamblers with those who scored as probable pathological gamblers to enhance the statistical power of the analysis. Empirical research in other jurisdictions has since provided support for this approach (see Appendix B).

Table 17 shows the point estimates and standard deviations for lifetime problem and probable pathological gambling for the 1989 and 1995 samples. Table 17 also shows the point estimates and standard deviations for the combined prevalence rate of lifetime problem and probable pathological gambling in Iowa in 1989 and 1995. Clearly, there has been a significant increase in the prevalence rate of lifetime problem and probable pathological gambling in Iowa between 1989 and 1995. There is no overlap in the standard deviations for the prevalence point estimates of either problem or probable pathological gambling or for the combined prevalence estimates.

TABLE 17
Comparing Lifetime Prevalence Estimates,
1989 and 1995

Prevalence	1989 (N=750)	1995 (N=1,500)	
Lifetime Probable Pathological	0.1% ($\pm 0.2\%$)	1.9% ($\pm 0.6\%$)	**
Lifetime Problem	1.6% ($\pm 0.8\%$)	3.5% ($\pm 0.9\%$)	**
Lifetime Prevalence	1.7% ($\pm 0.9\%$)	5.4% ($\pm 1.1\%$)	**
<hr/>			
*	Significant ($p \leq .05$)		
**	Highly significant ($p \leq .01$)		

The increase in the prevalence of problem and probable pathological gambling between 1989 and 1995 cannot be entirely differentiated since lifetime problem and probable pathological gamblers identified in 1989 may have been included in the 1995 survey. Although the extent of a possible overlap is impossible to determine, the 1995 lifetime prevalence rate remains significantly higher than the rate established in 1989 even when we subtract the entire 1989 prevalence rate.

Demographics

In appraising the increase in the lifetime prevalence of problem and probable pathological gambling in Iowa, it is important to consider possible changes in the demographic characteristics of problem and probable pathological gamblers in Iowa. The extremely small size of the group of lifetime problem and probable pathological gamblers from the 1989 survey (N=13) makes it difficult to establish statistical significance for such comparisons. However, the analysis suggests changes that may have taken place with regard to the population at greatest risk for experiencing gambling-related difficulties in Iowa.

In contrast to the full samples and to gamblers in the 1989 and 1995 surveys, Table 18 shows that there are no statistically significant differences between lifetime problem and probable pathological gamblers in Iowa in 1989 and 1995. The information in Table 18 does suggest that lifetime problem and probable pathological gamblers in Iowa are increasingly likely to be male, under the age of 30, non-Caucasian and unmarried. Lifetime problem and probable pathological gamblers in Iowa are also increasingly likely to have annual household incomes under \$25,000.

TABLE 18
Comparing Lifetime Problem Gamblers,
1989 and 1995

Demographics	1989 (N = 13)	1995 (N = 81)
Male	61 %	68 %
Under 30	38 %	64 %
Non-Caucasian	0 %	14 %
Not Married	38 %	61 %
Less than HS	15 %	11 %
HH Income Under \$25,000	23 %	40 %

* Significant ($p \leq .05$)

** Highly significant ($p \leq .01$)

Gambling Involvement

Since changes in the prevalence of problem gambling are assumed to be associated with changes in the availability of gambling, it is important to consider differences in the types of gambling done by problem gamblers in 1989 and 1995. Again, the small size of the group of problem and probable pathological gamblers in 1989 makes it difficult to establish statistical significance. However, the analysis suggests changes that may be taking place with regard to gambling by individuals at risk.

There is only one statistically significant difference in the lifetime gambling involvement of problem and probable pathological gamblers in 1989 and 1995. Gambling on machines is significantly higher ($p \leq .05$) among lifetime problem and probable pathological gamblers in 1995 than among problem and probable pathological gamblers in 1989.

Lifetime Scores on South Oaks Gambling Screen

In assessing changes in the prevalence of problem and probable pathological gambling in Iowa, it is important to look in detail at scores on the individual items that make up the screen as well as at scores on the composite South Oaks Gambling Screen. Since scores on the South Oaks Gambling Screen range from zero to 20, it is helpful to look first at changes in the proportion of respondents who score at different levels.

The South Oaks Gambling Screen classifies respondents with scores over three as having moderate to severe gambling-related difficulties. In comparing the 1989 and 1995 surveys, the increase in the proportion of the sample in this moderate to severe range is nearly 4%, which we have noted is statistically significant. Table 19 shows that there is an even larger increase (11%) in the proportion of the 1995 sample scoring one or two points on the South Oaks Gambling Screen. This suggests that an increasing proportion of the population in Iowa is experiencing difficulties related to their gambling.

TABLE 19
Scores on the South Oaks Gambling Screen,
1989 and 1995

South Oaks Gambling Screen	1989 (N = 750)	1995 (N = 1,500)
Zero	86.4%	71.7%
One or Two	11.9%	22.9%
Three or Four	1.6%	3.5%
Five or More	0.1%	1.9%

It is difficult to say whether any or all of the individuals who score one or two points on the South Oaks Gambling Screen will progress further towards a gambling problem or pathology. This analysis does suggest that increased attention to prevention and early intervention will be important in the future development of programs for problem gamblers in Iowa.

The South Oaks Gambling Screen items assess difficulties in personal, interpersonal and financial domains. Analysis of the individual items on the South Oaks Gambling Screen suggests more precisely which domains are most seriously affected by gambling-related difficulties among respondents in Iowa. The most substantial increases in positive responses are for questions related to the family. Respondents in the 1995 survey are significantly more likely than respondents in the 1989 survey to have spent more time or money than they intended on gambling and to have been criticized by others because of their gambling. Respondents in the 1995 survey are significantly more likely than respondents in the 1989 survey to admit that they have borrowed money to gamble or to pay gambling debts from a spouse, from relatives, from the household and on their credit cards.

Summary

The major purpose of this study was to examine in detail the hypothesis that increases in the availability of gambling lead to increases in the prevalence of problem gambling in the general population. If this hypothesis is true, we would expect to find a significant and substantial increase in the prevalence of problem and probable pathological gambling associated with the rapid expansion of legalized gambling in Iowa since 1989.

In this section, we have examined changes in the prevalence of lifetime problem and probable pathological gambling in Iowa between 1989 and 1995. In developing the questionnaire, care was taken to maintain comparability with the questionnaire used in 1989. In drawing the sample for the 1995

survey, care was taken to ensure full representation of males and young adults, groups that were under-represented in the earlier survey. Although these groups were not fully represented in the 1989 survey, analysis shows that weighting the sample does not yield significant differences in the 1989 rates of gambling involvement or problem gambling.

Comparison of gambling involvement among respondents in 1989 and 1995 shows that there has been a significant increase in respondents' lifetime gambling participation as well as in specific types of gambling, particularly gambling on machines, on games of skill and on the stockmarket. In addition to increases in lifetime gambling participation and in specific types of gambling, the number of types of gambling that respondents have ever tried has increased significantly between 1989 and 1995.

There has been a substantial and significant increase in the prevalence rate of lifetime problem and probable pathological gambling in Iowa between 1989 and 1995. Problem and probable pathological gamblers in Iowa are increasingly likely to be male, under the age of 30, non-Caucasian and unmarried. The greatest increase in the gambling involvement of problem and probable pathological gamblers between 1989 and 1995 is in gambling on machines.

In addition to a significant increase in the prevalence of problem and probable pathological gambling in Iowa, there is a significant increase in the proportion of respondents who score at lower levels on the South Oaks Gambling Screen. A substantial percentage of these individuals may progress further towards a gambling problem or pathology, leading to an even greater increase in the prevalence of problem and probable pathological gambling in Iowa in the future.

SUMMARY AND CONCLUSION

The primary purpose of this study was to test the hypothesis, proposed in 1989, that increases in the availability of legalized gambling in Iowa would lead to increases in the prevalence of problem gambling in the state. The secondary purpose of the study was to assess changes in the prevalence of problem gambling and in the characteristics of individuals with gambling-related difficulties to assist in the further development of services for problem gamblers in Iowa.

The results of this study show that significant numbers of Iowa residents participate in legal gambling, that such activities are widely accepted, and that most residents spend small to moderate amounts of money on wagering. However, the study also shows that there has been a significant increase in the prevalence of problem gambling in Iowa since 1989. We estimate that, *at a minimum*, there are now 10,300 adult Iowa residents experiencing severe difficulties related to their involvement in gambling.

Summary

In the past six years, Iowa has substantially increased an existing repertoire of legalized gambling. Our hypothesis, that increases in the availability of gambling in Iowa would lead to increases in the prevalence of gambling-related problems, is fully supported by the results of this study. Comparison of the survey in 1989 with the present study shows that there has been a significant and substantial increase in the prevalence of problem and probable pathological gambling in Iowa since 1989. The legal types of gambling most closely associated with the increase in gambling-related difficulties in Iowa are gambling on machines (including slot machines at casinos and video gaming devices) and instant lottery tickets.

The results of this study, as well as comparisons across the jurisdictions where detailed gambling information is available, suggest that the relationship between increases in the availability of gambling and the prevalence of gambling-related problems in the general population may be mediated by the availability of specific types of gambling. In particular, comparison of the prevalence of lifetime and current problem gambling in different United States jurisdictions suggests that the availability of casino gambling, and especially gambling on machines, is the greatest contributor to increases in the prevalence of problem gambling.

Directions for the Future

The costs of gambling problems can be high, not only for individuals but for families and communities. Pathological gamblers experience physical and psychological stress and exhibit substantial rates of depression, alcohol and drug dependence and suicidal ideation. The families of pathological gamblers experience physical and psychological abuse as well as harassment and threats from bill collectors and creditors. Other significant impacts include costs to employers, creditors, insurance companies, social service agencies and the civil and criminal justice systems.

In 1986, the Iowa legislature pioneered efforts to address the impacts associated with the legalization of gambling by setting aside a percentage of funds, first from lottery revenues and then from riverboat revenues, to fund a gambling treatment program. The Iowa Gambling Treatment Program is presently responsible for providing treatment services for problem gamblers and their

families and for promoting awareness of these services throughout the state. The Iowa Gambling Treatment Program oversees seven treatment centers throughout the state which provide services to several hundred problem gamblers and family members per year, maintains a toll-free telephone hotline and trains other healthcare professionals in the recognition and treatment of problem gamblers.

While Iowa was one of the first states to set aside funds for treatment services for problem gamblers and while Iowa Gambling Treatment Program has made substantial progress in establishing services for problem gamblers in Iowa, these services are reaching only a fraction of the thousands of Iowa residents with severe gambling-related difficulties. Further, an increase in individuals with gambling difficulties that do not yet meet criteria for problem or pathological gambling strongly suggests that the prevalence of problem gambling in Iowa may continue to climb in the future.

Given this scenario, it is imperative to maintain, and even expand, current services for problem gamblers in Iowa as well as to establish education and prevention services for individuals who are at greatest risk for developing gambling-related difficulties. Directions for the future should include:

- **increased funding** in anticipation of increases in the prevalence of gambling-related problems among Iowa residents and increases in the number of individuals seeking help with these problems;
- **expansion** of existing outreach, training and treatment services to assist gamblers experiencing difficulties who do not meet criteria for pathological gambling to prevent their further progress towards a gambling pathology with its associated impacts on families and communities in Iowa;
- **development** of public education and prevention services targeted toward at-risk and under-served groups in the population as well as innovative treatment approaches;
- **evaluation** of the effectiveness of established services, based on uniform data collected from existing programs as well as the hotline;
- continued **monitoring** of gambling participation and problem gambling prevalence in the state and consideration of a program of adolescent gambling research to determine the impacts of legalized gambling on youth in Iowa.

The information presented in this report represent the first opportunity to assess changes in gambling and problem gambling over time in Iowa. These data provide insights that will be valuable in on-going policy and planning efforts in the state. In the future, it will be important for everyone involved with legalized gambling in Iowa to work together to develop ways to help the increasing number of individuals in Iowa who experience difficulties related to their gambling and to prevent any further increases in the prevalence of problem gambling in the state.

REFERENCES

- Abbott, M. & R. A. Volberg. 1991. Gambling in New Zealand: Report on Phase One of the National Survey. Research Series No. 12. Wellington: New Zealand Department of Internal Affairs.
- Abbott, M. & R. A. Volberg. 1992. Frequent Gamblers and Problem Gamblers in New Zealand: Report on Phase Two of the National Survey. Research Series No. 14. Wellington: New Zealand Department of Internal Affairs.
- Abbott, M. & R. A. Volberg. 1995. "The New Zealand National Survey of Problem and Pathological Gambling." Journal of Gambling Studies, Special Issue on International Prevalence Studies and Related Treatment Developments, M. G. Dickerson & R. A. Volberg (eds). Forthcoming.
- American Psychiatric Association. 1980. Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Washington, DC: Government Printing Office.
- American Psychiatric Association. 1994. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: Government Printing Office.
- Baseline Market Research. 1992. Prevalence Survey of Problem Gambling in New Brunswick. Report to the New Brunswick Department of Finance.
- Christiansen/Cummings Associates. 1992. Legal Gambling in Connecticut: Assessment of Current Status and Options for the Future. Report to the Connecticut Division of Special Revenues.
- Criterion Research Corporation. 1993. Problem Gambling Study. Report to the Manitoba Lotteries Foundation.
- 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 Gambling Behavior and Problem Gambling, W. R. Eadington & J. A. Cornelius (eds). Reno: University of Nevada Press.
- Emerson, M. O., J. C. Laudergeran & J. M. Schaefer. 1994. Adult Survey of Minnesota Problem Gambling Behavior: A Needs Assessment: Changes 1990 to 1994. Report to the Minnesota Department of Human Services.
- Kallick, M., Suits, D. Dielman, T. & J. Hybels. 1979. A Survey of American Gambling Attitudes and Behavior. Research Report Series, Survey Research Center, Institute for Social Research. Ann Arbor: University of Michigan Press.
- Kallick-Kaufmann, M. 1979. "The Micro and Macro Dimensions of Gambling in the United States," Journal of Social Issues 35: 7-26.

- Ladouceur, R. 1993. "Prevalence Estimates of Pathological Gamblers in Quebec, Canada." In Gambling Behavior and Problem Gambling, W. R. Eadington & J. A. Cornelius (eds). Reno: University of Nevada Press.
- Ladouceur, R., A. Gaboury, M. Dumont & P. Rochette. 1988. "Gambling: Relationship Between the Frequency of Wins and Irrational Thinking," Journal of Psychology 122: 409-414.
- Laudergan, J. C. 1992. Measuring Pathological Gambling in a General Population and a Chemically Dependent Population Using SOGS and a Modified SOGS (MOGS). Paper presented at the National Conference on Gambling Behavior. Cleveland, OH.
- Laudergan, J. C., J. M. Schaefer, K. F. Eckhoff & P. L. Pirie. 1990. Adult Survey of Minnesota Gambling Behavior: A Benchmark, 1990. Report to the Minnesota Department of Human Services, Mental Health Division.
- 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.
- Lesieur, H. R., S. B. Blume & R. M. Zoppa. 1986. "Alcoholism, Drug Abuse, and Gambling," Alcoholism 10: 33-38.
- Lesieur, H. R. & R. Klein. 1985. Prisoners, Gambling and Crime. Paper presented to the Academy of Criminal Justice Sciences.
- Lesieur, H. R. & R. J. Rosenthal. 1990. "Pathological Gambling: A Review of the Literature (prepared for the American Psychiatric Association Task Force on DSM-IV Committee on Disorders of Impulse Control Not Elsewhere Classified)," Journal of Gambling Studies 7: 5-40.
- National Council on Problem Gambling. 1994. The Need for a National Policy on Problem and Pathological Gambling in America. Report prepared by the Research and Public Policy Committees of the National Council on Problem Gambling.
- Omnifacts Research. 1993. An Examination of the Prevalence of Gambling in Nova Scotia. Report to the Nova Scotia Department of Health, Drug Dependency Services.
- Rosecrance, J. 1988. Gambling Without Guilt: The Legitimation of an American Pastime. Belmont, CA: Wadsworth.
- Smith, G. J., R. A. Volberg & H. J. Wynne. 1993. Gambling and Problem Gambling in Alberta: Report on a Two-Phase Study. Report to the Alberta Lotteries and Gaming Commission.
- Sommers, I. 1988. "Pathological Gambling: Estimating Prevalence and Group Characteristics," International Journal of the Addictions 23: 477-490.
- Volberg, R. A. 1992. Gambling Involvement and Problem Gambling in Montana. Report to the Montana Department of Corrections and Human Services.

- Volberg, R. A. 1993. Gambling and Problem Gambling in Washington State. Report to the Washington State Lottery.
- Volberg, R. A. 1994a. "Pathological Gambling as a Public Health Issue," American Journal of Public Health 84 (2): 237-241.
- Volberg, R. A. 1994b. Gambling and Problem Gambling in Saskatchewan. Report to the Minister's Advisory Committee on Social Impacts of Gaming.
- Volberg, R. A. 1995a. Gambling and Problem Gambling in Georgia. Report to the Georgia Department of Human Services.
- Volberg, R. A. 1995b. "Prevalence Studies of Problem Gambling in the United States," Journal of Gambling Studies, Special Issue on International Prevalence Studies and Related Treatment Developments, M. G. Dickerson & R. A. Volberg (eds). Forthcoming.
- Volberg, R. A. 1995c. Wagering and Problem Wagering in Louisiana. Report to the Louisiana Economic Development & Gaming Corporation.
- Volberg, R. A. & M. Abbott. 1994. "Lifetime Prevalence Estimates of Pathological Gambling in New Zealand," International Journal of Epidemiology 23 (5): 976-983.
- Volberg, R. A. & Angus Reid Group. 1994. Social Gaming and Problem Gambling in British Columbia. Report to the British Columbia Lottery Corporation.
- Volberg, R. A. & E. Silver. 1993. Gambling and Problem Gambling in North Dakota. Report to the North Dakota Department of Human Services, Division of Mental Health.
- Volberg, R. A. & H. J. Steadman. 1988. "Refining Prevalence Estimates of Pathological Gambling," American Journal of Psychiatry 145: 502-505.
- Volberg, R. A. & H. J. Steadman. 1989. Problem Gambling in Iowa. Report to the Iowa Department of Human Services.
- Volberg, R. A. & R. M. Stuefen. 1991. Gambling and Problem Gambling in South Dakota. Report to the Governor's Office of South Dakota.
- Volberg, R. A. & R. M. Stuefen. 1994. Gambling and Problem Gambling in South Dakota: A Follow Up Survey. Report to Citizens Uniting for Gambling Reform.
- Walker, M. B. 1992. The Psychology of Gambling. Oxford: Pergamon Press.
- Wallisch, L. 1993. The 1992 Texas Survey of Adult Gambling Behavior. Report to the Texas Commission on Alcohol and Drug Abuse.

APPENDIX A

**A History of Gambling Activities in Iowa,
1974-1995**

DATE	ACTIVITY
1974	Bingo licenses issued for charitable purposes
1974	Legalized social gambling with limit of \$50 win in 24-hour period
1981	Bingo licenses issued only to tax-exempt organizations
1983	Parimutuel gambling approved
1985	Sports pools allowed with limits of \$5 per chance and \$500 payout
1985	Dog racing begins
1985	Lottery begins

At the time of Iowa's 1988-89 prevalence study on problem gambling, gambling activities included:

1988-89 social gambling, bingo, sports pools, parimutuel, lottery

1989	Horse racing begins
1991	Unlimited simulcasting approved
1991	Riverboat casinos open with limits of \$5 per play and \$200 per excursion
1992	Native American casinos established
1994	3 riverboat casinos operating in April
1994	Slot machines at the racetracks approved
1994	Casino betting limits removed
1994	Lottery installs 500 instant ticket vending machines
1994	6 riverboat casinos operating in December

At the time of Iowa's 1995 prevalence study on problem gambling, gambling activities included:

1995 social gambling, bingo, sports pools, lottery, parimutuel and simulcasting, betting limits removed at 6 riverboat casinos, 3 Native American casinos, 3 dogtracks and 1 horsetrack

Iowa gambling activities after the 1995 prevalence study include:

1995	Dogtrack begins operating slot machines in March
1995	Horsetrack begins operating slot machines in April
1995	7 riverboat casinos operating in April
1995	Second dogtrack to begin operating slot machines in September
1996	2 more riverboat casinos to open

Prepared by: Francis G. Biagioli, Executive Director-Iowa Gambling Treatment Program
July 1995

APPENDIX B

Methods to Assess Problem Gambling in the General Population

Increasingly, surveys of gambling and problem gambling in the general population have become an essential component in the establishment and monitoring of gaming initiatives in Australia, Canada, Europe and the United States. Information from such surveys helps identify and minimize the potentially harmful impacts that legalized gambling may produce. This proactive approach helps ensure that appropriate measures are taken to educate the public about problem gambling and that appropriate levels and types of services for individuals with gambling-related difficulties are funded, developed and maintained.

Development of the South Oaks Gambling Screen

Only one survey of gambling and gambling-related difficulties in the general population was conducted in the United States prior to 1980 (Kallick, Suits, Dielman & Hybels 1979). Between 1984 and 1990, state-wide surveys of gambling and problem gambling were carried out in California, Connecticut, Iowa, Maryland, Massachusetts, Minnesota, New Jersey, New York and Ohio (Christiansen/Cummings Associates 1992; Laudergeran, Schaefer, Eckhoff & Pirie 1990; Sommers 1988; Volberg 1994a; Volberg & Steadman 1988) as well as in the Canadian province of Quebec (Ladouceur 1993).

Since 1990, prevalence surveys of gambling and problem gambling have been completed in Georgia, Louisiana, Montana, North Dakota, South Dakota, Texas and Washington State (Volberg 1992, 1993, 1995a, 1995b, 1995c; Volberg & Silver 1993; Volberg & Stuefen 1991; Wallisch 1993) as well as in the Canadian provinces of Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia and Saskatchewan (Baseline Market Research 1992; Criterion Research 1993; Omnifacts Research 1993; Smith, Volberg & Wynne 1994; Volberg 1994b; Volberg & Angus Reid Group 1994). A national prevalence survey of gambling and problem gambling has been completed in New Zealand (Abbott & Volberg 1991, 1992). All but three of the prevalence surveys carried out since 1980 have been based on the South Oaks Gambling Screen (Lesieur & Blume 1987).

The South Oaks Gambling Screen is a 20-item scale based on the diagnostic criteria for pathological gambling (American Psychiatric Association 1980). Weighted items on the South Oaks Gambling Screen include hiding evidence of gambling, spending more time or money gambling than intended, arguing with family members over gambling and borrowing money to gamble or to pay gambling debts. In developing the South Oaks Gambling Screen, specific items as well as the entire screen were tested for reliability and validity with a variety of groups, including hospital workers, university students, prison inmates and inpatients in alcohol and substance abuse treatment programs (Lesieur & Blume 1987; Lesieur, Blume & Zoppa 1986; Lesieur & Klein 1985).

Surveys of gambling and problem gambling completed since 1990 have used a revised version of the South Oaks Gambling Screen developed in New Zealand (Abbott & Volberg 1991, 1992). In revising the South Oaks Gambling Screen, the preliminary section of the questionnaire was expanded to collect more detailed information about gambling frequency and expenditures in the general population. In addition, the South Oaks Gambling Screen items were expanded to assess both lifetime and current prevalence of problem and pathological gambling. To determine if the changes made to the South Oaks Gambling Screen had any impact on reported prevalence rates, the revised South Oaks Gambling Screen was tested in Iowa in 1991. The difference in the prevalence rates for these two questionnaires was 0.1% (Volberg & Stuefen 1991).

The Accuracy of SOGS-Based Prevalence Rates

The South Oaks Gambling Screen was originally developed for use as a clinical screen and was adapted slightly in 1986 for use in general population surveys (Volberg & Steadman 1988). Like all screens to detect physical and psychological maladies, the South Oaks Gambling Screen is expected to make errors in classification although misclassification has very different consequences in clinical settings than in research in the general population.

Misclassification can occur when an individual without the malady in question is misdiagnosed as having the malady. This type of classification error is called a *false positive*. Misclassification can also occur when an individual with the malady is misdiagnosed as not having the malady. This type of classification error is called a *false negative* (see table below).

Classification	Condition	
	Pathological	Non-Pathological
Pathological	True Positive	False Positive
Non-Pathological	False Negative	True Negative

Determining the size of each type of classification error and correcting for these errors is the key to establishing more accurate prevalence estimates. Research in New Zealand used the positive predictive value and efficiency approaches in efforts to correct lifetime and current prevalence rates of pathological gambling. The positive predictive value approach is based on existing information about the sensitivity and specificity of an instrument. Sensitivity is a measure of the capacity of an instrument to accurately detect the presence of a particular condition. Specificity is a measure of the rate at which an instrument detects true and false negatives.

While the lifetime South Oaks Gambling Screen is known to have high sensitivity, the specificity of the screen has differed across different groups in the population (Lesieur & Blume 1987). Sensitivity and specificity have never been determined for the current South Oaks Gambling Screen. While the New Zealand researchers were able to correct the lifetime prevalence rate for false positives, it proved difficult to make the correction for false negatives. The researchers concluded that until more is known about the rate at which the lifetime South Oaks Gambling Screen misclassifies pathological gamblers as non-pathological, the usefulness of the positive predictive value approach in revising lifetime prevalence estimates was limited.

The efficiency approach was possible in New Zealand because a two-phase research design was used to identify *true pathological gamblers* among particular groups of respondents (Abbott & Volberg 1992). In the New Zealand study, true pathological gamblers were identified in each of four groups

included in the survey: probable pathological gamblers, problem gamblers, continuous gamblers and non-continuous gamblers. No error rate was determined for respondents in the New Zealand study who did not acknowledge gambling on a regular basis. The efficiency approach involved calculating the rate of true pathological gamblers in each group and dividing this number by the total number of respondents in the sample. The efficiency approach resulted in a revised current prevalence estimate in New Zealand that was 0.1% higher than the uncorrected current prevalence rate.

This revised estimate rested on the conservative assumption that there were no false negatives among individuals who do not gamble regularly. While the error rates in the four groups have an impact on the overall prevalence rate, the size of the error rate for each group will have a different impact because of the differing sizes of these groups in the population. Even if the number of true pathological gamblers in the false negative group or among respondents who do not gamble regularly were extremely small, the relatively large size of these groups contributes to a noticeably higher overall prevalence rate. For example, if the non-gambling group is assumed to include a very small number of pathological gamblers (1%), the prevalence estimate increases by 0.7%.

The New Zealand researchers concluded that the lifetime South Oaks Gambling Screen is very good at detecting pathological gambling among those who experience the disorder. However, as expected, the screen identifies at-risk individuals at the expense of generating a substantial number of false positives. The current South Oaks Gambling Screen produces fewer false positives than the lifetime measure but more false negatives and thus provides a weaker screen for identifying pathological gamblers in the clinical sense. However, the greater efficiency of the current South Oaks Gambling Screen makes it a more useful tool for detecting rates of change in the prevalence of problem and pathological gambling over time (Abbott & Volberg 1995).

Although there are questions about the validity of applying results from research in New Zealand to studies completed in the United States, the New Zealand research does suggest that estimates of the lifetime prevalence of problem and probable pathological gambling over-state the actual prevalence of pathological gambling. Since the 1989 prevalence rate in Iowa was based on the lifetime South Oaks Gambling Screen, it is likely that this estimate was higher than the actual prevalence rate that existed in Iowa in 1989. Similarly, the 1995 lifetime prevalence rate in Iowa probably over-states the actual prevalence of pathological gambling.

The New Zealand research further suggests that estimates of the current prevalence of problem and probable pathological gambling in Iowa are quite accurate. In future research on gambling and problem gambling in Iowa, it will be essential to collect information on current prevalence so that the magnitude of changes in the prevalence of gambling-related difficulties in Iowa can be accurately assessed.

APPENDIX C

Questionnaire for the Iowa Replication Survey

Hello, my name is _____, and I'm calling from Iowa Field Research in Ankeny, Iowa. We are doing a study of the gambling practices of the citizens of Iowa. In order to interview the right person, I need to speak with the member of your household who is age 18 or over, and has had the most recent birthday. Would that be you?

[IF NO, ASK TO SPEAK TO THAT PERSON, AND REPEAT INTRODUCTION.

IF NOT AVAILABLE, ARRANGE A CALL-BACK TIME AND NOTE NAME ON CALL LIST.]

This is a scientific study funded by the state of Iowa. This is not affiliated with any of the political efforts to support or oppose gambling in the state. Your household is one of 1500 being surveyed. Your number was randomly selected by a computer, and all of your answers will be anonymous.

[PRESS "ENTER" TO CONTINUE]

Today / tonight, we are concentrating our dialing
in certain areas of the state. Which county do you live in?

[KEY IN COUNTY NUMBER]

[IF QUOTA FILLED FOR COUNTY,
THANK RESPONDENT AND TERMINATE,
PRESS X TO RETURN TO BEGINNING OF INTERVIEW]

People bet on many different things such as raffles, football games, and card games. I am going to ask you about some activities such as these that you may participate in.

[IF PERSON NEVER GAMBLES, DOESN'T BELIEVE IN IT, ETC. SAY:]

We understand that not everyone gambles,
but your opinions are still very important to us.

Let me just run quickly through the list.

It will only take a minute.

[PRESS ENTER TO CONTINUE]

Have you ever bet or spent money on
INSTANT LOTTERY TICKETS (including scratch tickets and pull tabs)

- 1) YES
- 2) NO

Have you ever bet or spent money on
LOTTERY GAMES OTHER THAN INSTANT LOTTERY TICKETS (Scratch & Pull Tabs)

- 1) YES
- 2) NO

Have you ever bet or spent money on
CASINO TABLE GAMES (including card games, dice games, or roulette)

- 1) YES
- 2) NO

Have you ever bet or spent money on
SLOT MACHINES (such as those at riverboat or Indian casinos and racetracks)

- 1) YES
- 2) NO

Have you ever bet or spent money on
VIDEO GAMING DEVICES (inc. video poker, video keno, and video blackjack)

- 1) YES
- 2) NO

Have you ever bet or spent money on
LIVE BINGO OR LIVE KENO

- 1) YES
- 2) NO

Have you ever bet or spent money on
CARD GAMES FOR MONEY (inc. with friends and family, but not at a casino)

- 1) YES
- 2) NO

Have you ever bet or spent money on
HORSES, DOGS OR OTHER ANIMALS

- 1) YES
- 2) NO

Have you ever bet or spent money on
STOCK MARKET OR COMMODITIES FUTURES MARKET

- 1) YES
- 2) NO

Have you ever bet or spent money on
BOWLING, PLAYING POOL, GOLF OR DOMINOES OR OTHER GAMES OF SKILL FOR MONEY

- 1) YES
- 2) NO

Have you ever bet or spent money on
SPORTS EVENTS (inc. with frnds, acqntnecs, co-wrkr or bookie,not pool)

- 1) YES
- 2) NO

Have you ever bet or spent money on
OTHER GAMBLING (i.e. office pool, raffle, or charitable small stakes)

- 1) YES
- 2) NO

Have you ever bet or spent money on
ANY OTHER GAMBLING ACTIVITY

- 1) YES
- 2) NO

Have you bet or spent money on
INSTANT LOTTERY TICKETS (including scratch tickets and pull tabs)
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
LOTTERY GAMES OTHER THAN INSTANT LOTTERY TICKETS (Scratch & Pull Tabs)
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
CASINO TABLE GAMES (including card games, dice games, or roulette)
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
SLOT MACHINES (such as those at riverboat or Indian casinos and racetracks)
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
VIDEO GAMING DEVICES (inc. video poker, video keno, and video blackjack)
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
LIVE BINGO OR LIVE KENO
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this activity in a typical month?
[IF NEEDED, SAY: I am only looking for an approximate amount, rounded to the nearest 5 dollars or so.]
[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?
1) YES
2) NO

Have you bet or spent money on CARD GAMES FOR MONEY (inc. with friends and family, but not at a casino) in the past year?
1) YES
2) NO

Can you give me an idea of the amount that you spend on this activity in a typical month?
[IF NEEDED, SAY: I am only looking for an approximate amount, rounded to the nearest 5 dollars or so.]
[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?
1) YES
2) NO

Have you bet or spent money on HORSES, DOGS OR OTHER ANIMALS in the past year?
1) YES
2) NO

Can you give me an idea of the amount that you spend on this activity in a typical month?
[IF NEEDED, SAY: I am only looking for an approximate amount, rounded to the nearest 5 dollars or so.]
[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?
1) YES
2) NO

Have you bet or spent money on STOCK MARKET OR COMMODITIES FUTURES MARKET in the past year?
1) YES
2) NO

Can you give me an idea of the amount that you spend on this activity in a typical month?
[IF NEEDED, SAY: I am only looking for an approximate amount, rounded to the nearest 5 dollars or so.]
[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
BOWLING, PLAYING POOL, GOLF OR DOMINOES OR OTHER GAMES OF SKILL FOR MONEY
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]
[WHOLE NUMBERS! NO DECIMALS! NO COMMAS]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
SPORTS EVENTS (inc. with frnds, acqntncs, co-wrkr or bookie, not pool)
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
OTHER GAMBLING (i.e. office pool, raffle, or charitable small stakes)
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this
activity in a typical month?

[IF NEEDED, SAY: I am only looking for an approximate amount,
rounded to the nearest 5 dollars or so.]

[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]

Do you gamble for money on this activity at least once per week?

- 1) YES
- 2) NO

Have you bet or spent money on
ANY OTHER GAMBLING ACTIVITY
in the past year?

- 1) YES
- 2) NO

Can you give me an idea of the amount that you spend on this activity in a typical month?
[IF NEEDED, SAY: I am only looking for an approximate amount, rounded to the nearest 5 dollars or so.]
[ENTER NUMBER BETWEEN 0 AND 999999 THEN PRESS ENTER]

Do you gamble for money on this activity at least once per week?
1) YES
2) NO

When you participate in the types of activities we have just discussed, do you most often do so...
[READ LIST: ACCEPT ONLY ONE RESPONSE]

- 1) Alone
- 2) With your spouse or partner
- 3) With other family members
- 4) With friends
- 5) With Co-workers
- 6) With some other individual or group (SPECIFY)
- 7) REFUSED [DO NOT READ]

When you gamble, do you usually do so for
[READ LIST]

- 1) Less than 1 hour
- 2) 1-2 hours
- 3) 3-5 hours
- 4) 6-12 hours
- 5) More than 12 hours
- 6) REFUSED [DO NOT READ]

What is the largest amount of money you have ever lost in one day, gambling or wagering?

- 1) \$1 or less
- 2) \$1 - \$9
- 3) \$10 - \$99
- 4) \$100 - \$999
- 5) \$1,000 - \$9,999
- 6) \$10,000 or more

The next set of questions is part of a standard measurement scale which has been used throughout the United States in surveys similar to this one. There are no right or wrong answers to the questions that follow. We want to know what your experiences have been. Please try to be as accurate as possible in your answers, and remember that all of your answers are confidential.

[PRESS "ENTER" TO CONTINUE]

[IF ENCOUNTERING DIFFICULTIES WITH RESPONDENTS IN COMPLETING THIS SECTION]

("We realize that these questions may not apply to everyone, but we do need answers to all of the questions. It will only take a few more minutes.")

When you participate in the gambling activities we have discussed, how often do you go back another day to win back money you lost? Is it:

- 1) NEVER
- 2) SOME OF THE TIME
- 3) MOST OF THE TIME
- 4) EVERY TIME

5) NO OPINION/REFUSED [DO NOT READ]

How often have you done this in the past year?

- 1) NEVER
- 2) SOME OF THE TIME
- 3) MOST OF THE TIME
- 4) EVERY TIME
- 5) NO OPINION/REFUSED [DO NOT READ]

Have you ever claimed to be winning money from these activities when, in fact, you have lost?

- 1) NEVER
- 2) SOME OF THE TIME
- 3) MOST OF THE TIME
- 4) EVERY TIME
- 5) NO OPINION/REFUSED [DO NOT READ]

How often have you done this in the past year?

- 1) NEVER
- 2) SOME OF THE TIME
- 3) MOST OF THE TIME
- 4) EVERY TIME
- 5) NO OPINION/REFUSED [DO NOT READ]

Do you ever spend more time or money gambling than you intended?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you done this in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have people ever criticized your gambling?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have people criticized your gambling in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever felt guilty about the way you gamble, or about what happens when you gamble?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you felt this way in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever felt that you would like to stop gambling, but didn't think that you could?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you felt this way in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever hidden betting slips, lottery tickets, gambling money, or other signs of gambling from your spouse or partner, children, or other important people in your life?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you done so in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever argued with people you live with over how you handle money?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have these arguments ever centered on your gambling?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you had any of these arguments in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever missed time from work or school due to gambling?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [NOT APPLY]

Have you missed time from work or school in the past year due to gambling?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [NOT APPLY]

Have you ever borrowed money from someone and not paid them back as a result of your gambling?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you done so in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Next, I am going to read a list of the ways in which some people get money for gambling. Can you tell me which of these, if any, you have ever used to get money for gambling or to pay gambling debts?

[PRESS "ENTER" TO CONTINUE]

Have you ever borrowed from household money?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you borrowed from household money in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever borrowed money from your spouse or partner?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you borrowed money from your spouse or partner in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever borrowed from other relatives or in-laws?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you borrowed from other relatives or in-laws in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Please remember, we are asking you about borrowing money
for gambling, or to pay gambling debts.

[PRESS "ENTER" TO CONTINUE]

Have you ever gotten loans from banks, loan companies, or credit unions?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you gotten loans from banks, loan companies, or
credit unions in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you ever used your credit cards to get money to gamble or to
pay gambling debts? (DOES NOT INCLUDE INSTANT CASH CARDS FROM
BANK ACCOUNTS.)

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

Have you used your credit cards to get money for gambling
or paying gambling debts in the past year?

- 1) YES
- 2) NO
- 3) NO OPINION/REFUSED [DO NOT READ]

What type of help was that?

- 1) Family Member
- 2) Friend
- 3) Family Doctor
- 4) Gamblers Anonymous
- 5) Veterans Administration
- 6) Employee Assistance Program (EAP)
- 7) Psychologist or Psychiatrist
- 8) Other Counselor
- 9) Minister/Priest/Rabbi
- A) Alcohol or drug abuse treatment program
- B) 1-800-BETS OFF
- C) Iowa Gambling Treatment Program / Gamblers Assistance Program
- D) Other
- E) Refused

As you probably know, different types of people have different opinions and experiences. The following questions are for statistical purposes only, and the answers to these questions, like all of the others, will be confidential.

[PRESS "ENTER" TO CONTINUE]

Are you currently married, widowed, divorced, separated, or have you never been married?

- 1) Married, Common-law, Co-habitation
- 2) Widowed
- 3) Divorced
- 4) Separated
- 5) Never Married
- 6) Refused/NA

Including yourself, how many people age 18 and older live in your household?

[TYPE IN NUMBER AND PRESS ENTER TO CONTINUE]
[1 IF REFUSED NUMBER BESIDES THEMSELVES]

What is the last grade of school you completed?

[DO NOT READ]

- 1) Elementary or some high school
- 2) High school graduate or G.E.D.
- 3) Some College or Associates Degree (vocational,tech. or trade sch.)
- 4) Bachelors Degree
- 5) Graduate Study or degree
- 6) Refused/NA

Last week, were you working full-time, part-time, going to school, keeping house, or something else?

- 1) Working full-time
- 2) Working part-time
- 3) Going to school
- 4) Keeping house
- 5) Disabled
- 6) Retired
- 7) Unemployed
- 8) Other (specify)
- 9) Refused/NA

What kind of work do you normally do?

- 1) Farming/Agriculture
- 2) Mining
- 3) Sales Representative
- 4) Retail services
- 5) Other Services
- 6) Professional/technical
- 7) Clerical
- 8) Manager/Proprietor
- 9) Skilled, Craftsman
- A) Semi-skilled, operative
- B) Laborer
- C) Student
- D) Other (Specify)
- E) Refused/NA

How old are you?

[IF REFUSED EXACT AGE ENTER 0 AND PRESS ENTER]

Then can you please tell me which age category you fit into?

[READ LIST]

- 1) 18 - 24
- 2) 25 - 29
- 3) 30 - 39
- 4) 40 - 49
- 5) 50 - 64
- 6) 65 or over
- 7) Refused/NA

Which best describes your racial or ethnic group?

[DO NOT READ LIST UNLESS THE RESPONDENT STRUGGLES WITH THE ANSWER]

- 1) White/Caucasian
- 2) Hispanic
- 3) Native American
- 4) Asian
- 5) Black/African American
- 6) Other
- 7) Refused/NA

Which best describes your current religious preference?

[DO NOT READ LIST UNLESS RESPONDENT STRUGGLES WITH ANSWER.]

- 1) Protestant
- 2) Catholic
- 3) Jewish
- 4) Muslim
- 5) Other
- 6) None
- 7) Refused/NA

What was your total household income last year, before taxes?

[READ LIST]

- 1) \$15,000 or less
- 2) Over \$15,000 up to \$25,000
- 3) Over \$25,000 up to \$35,000
- 4) Over \$35,000 up to \$50,000
- 5) Over \$50,000 up to \$75,000
- 6) Over \$75,000
- 7) Refused/NA

What is your zip code please?

5 _____
[PRESS ENTER TO CONTINUE]

In case my supervisor wants to validate this interview,
would you please give me your name?
[ENTER REF IF REFUSED]

And let me confirm the number I dialed....
Those are all of our questions.
Thank you very much for spending time with me today.

RESPONDENT SEX

[DON'T ASK]

- 1) MALE
- 2) FEMALE
- 3) CANNOT TELL

APPENDIX D

Comparing Iowa with Other Jurisdictions

	Iowa (N=81)	Montana (N=36)	North Dakota (N=53)	South Dakota (N=44)	Texas (N=299)	Washington State (N=76)
Lifetime Prevalence	5.4%	3.6%	3.5%	2.8%	4.8%	5.1%
Current Prevalence	3.3%	2.2%	2.0%	**1.4%	2.5%	2.8%
Demographics of Problem Gamblers						
Male	68%	53%	55%	61%	60%	63%
Under 30	64%	33%	24%	32%	40%	35%
Non-Caucasian	14%	6%	7%	9%	49%	18%
Not Married	61%	33%	36%	64%	55%	59%
Less than HS	11%	6%	9%	14%	20%	21%
Annual HH Under \$25,000	40%	47%	43%	59%	30%	38%
Gambling Involvement of Problem Gamblers						
Weekly Gambling	62%	64%	41%	*	47%	66%
Avg Age Started Gambling	20	21	20	*	24	22
Avg Monthly Expenditure	\$197	\$208	\$164	*	\$473	\$244

** In South Dakota, the current South Oaks Gambling Screen items were framed as "past six months" rather than as "past year." The current prevalence rate in South Dakota is not comparable to current prevalence rates identified in other jurisdictions.

Iowa (N=1,500) Montana (N=1,020) North Dakota (N=1,517) South Dakota (N=1,560) Texas (N=6,308) Washington State (N=1,502)

Demographics of Sample

Male	47%	49%	41%	44%	46%	49%
Under 30	13%	16%	15%	17%	23%	19%
Non-Caucasian	3%	4%	3%	4%	31%	10%
Not Married	42%	36%	35%	34%	40%	40%
Less than HS	9%	8%	11%	13%	18%	14%
Annual HH Under \$25,000	42%	41%	40%	46%	29%	30%

Gambling Involvement of Sample

Lifetime Participation	88%	86%	82%	86%	76%	91%
Infrequent Gamblers	16%	11%	9%	*	28%	11%
Past-Year Gamblers	48%	49%	60%	*	37%	54%
Weekly Gamblers	24%	25%	13%	*	12%	26%
Avg Age Started Gambling	27	26	39	*	31	29
Avg Monthly Expenditure	\$40	\$51	\$25	\$23	\$78	\$53
Spend \$100+ /month	9%	9%	6%	*	11%	10%
Proportion of Total Expenditures	70%	72%	55%	*	90%	76%

* Detailed data on gambling and problem gambling in the general population of South Dakota were collected in 1991 and 1993 by the University of South Dakota Business Research Bureau. Patterns of gambling and problem gambling similar to patterns detected in other jurisdictions were identified in South Dakota. However, permission to include South Dakota in analyses for other jurisdictions has been denied.

