

GAMBLING AND PROBLEM GAMBLING IN PUERTO RICO

Report to the Puerto Rico Treasury Department

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INTRODUCTION

Until recently throughout the world, the legalization of gambling has proceeded apace with little consideration of the potentially negative impacts that gambling can have on individuals, families and communities. In the 1990s, however, prevalence surveys have become an essential component in the establishment and monitoring of gambling legalization (Volberg & Dickerson, 1996). This study, funded by the Puerto Rico Treasury Department, examines the extent of gambling and problem gambling in Puerto Rico in 1997 and compares these findings to similar studies conducted elsewhere.

While gambling in Puerto Rico dates back to the Spanish period of colonization, the first serious effort to address the negative consequences of gambling came in 1994, when the Secretary of the Treasury Department of Puerto Rico, Hon. Manuel Díaz Saldaña, sponsored a helpline for problem gamblers in Puerto Rico attached to the Electronic Lottery Office (Programa PODEMOS). As in many other jurisdictions, the establishment of some form of assistance for problem gamblers came in Puerto Rico before any empirical research was undertaken to determine the prevalence of gambling and problem gambling.

Conversations initiated in 1995 between Ketty Ocasio García, Ph.D., NCGC, Consultant to the Puerto Rico Treasury Department, Rachel A. Volberg, Ph.D., a researcher with extensive experience in gambling studies and President of Gemini Research in Pennsylvania, and Pedro A. Vales, Ph.D., a researcher and President of Consultores en Conducta Humana, Inc. in San Juan, Puerto Rico, led to the first island-wide study of gambling and problem gambling. The results of that study, commissioned and funded by the Puerto Rico Treasury Department and the Electronic Lottery Office, are reported here.

The main purpose of this study has been to explore the extent and magnitude of legal and illegal gambling among adults in Puerto Rico as well as to examine different gambling patterns in the population. In addition, the research aims to establish a baseline measure of the prevalence of gambling-related problems and to identify the types of gambling causing the greatest difficulties for the citizens of Puerto Rico. The results of this study could contribute to the development of public policy with regard to legal gambling in Puerto Rico.

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 survey. The next three sections detail findings from the survey in the following areas:

- gambling in Puerto Rico
- prevalence of problem gambling in Puerto Rico
- comparing non-problem and problem gamblers in Puerto Rico

The report concludes with a summary, a review of the activities that other states have undertaken in response to the issue of problem gambling and recommendations for the future.

Background¹

Gambling in Puerto Rico includes a variety of legal and illegal activities. These include cockfights, horse racing, casinos, the numbers games, charitable games, the traditional lottery, the electronic lottery, slot machines, dice games and others. Puerto Ricans have always been enthusiastic gamblers and these activities form an essential part of everyday life in the Island.

The History of Gambling in Puerto Rico

Gambling has existed in Puerto Rico since before the Spaniards colonized the Island at the end of the 15th Century. One of the oldest gambling activities in Puerto Rico appears to be the cockfights, a recreational activity introduced by the Spaniards and regulated by the Government for many years.² In 1898, cockfighting was prohibited due to pressure from the United States Animal Protection Society. However, after several attempts, cockfighting was legalized again in 1933. There are approximately 125 cockfighting arenas throughout the Island.

Horse racing was also introduced to Puerto Rico by the Spaniards and has been regulated by the Government since the beginning of the 20th Century. In the 19th Century, horse racing was an important part of the San Juan Bautista Patron Feasts. In 1849, horse races were accidentally prohibited in Puerto Rico and had to be reinstated through the intervention of the Queen of Spain some years later. In 1910, horse racing was legalized throughout the Island and, in 1956, wagering at off-track facilities (OTB) was legalized. At present, horse races are run five days a week and cockfights are held every day throughout Puerto Rico.

Casinos represent one of the most recent legal gambling activities in Puerto Rico, having been instituted under the Random Games Law in 1948. The Random Games Law has been revised on several occasions. Nearly all of the tourist hotels in Puerto Rico have casinos where both tourists and Puerto Ricans are able to play slot machines as well as blackjack, poker, craps and roulette.

The first lottery in Puerto Rico dates back to 1814 when the Puerto Rico Traditional Lottery was started by order of the King of Spain. However, it was not until 1934 that the lottery was officially instituted. After a series of revisions and amendments, the Traditional Lottery was established legally in 1947 although the law has been amended several times. The Traditional Lottery is played weekly in Puerto Rico, with a top prize of \$150,000. In addition, there are three Extraordinary events with top prizes of \$1 million. None of the prizes offered by the Traditional Lottery are taxed.

“Loto” and “Pega Tres” (Pick Three) are special lottery games created in 1989. These games are run electronically and buyers are able to select their own numbers. In the case of “Loto,” gamblers purchase tickets for \$1 and may choose six numbers between 1 and 38 (changed in 1997 to 1 and 42) for an estimated top prize of \$2 million or more as it accumulates distributed over a maximum 20-year period. “Pega Tres” also costs \$1 for a ticket and offers a top prize of \$500. “Loto” is run once a week and “Pega Tres” games are held four times a week.

Charitable games, specifically bingo, were legalized in Puerto Rico in 1950. Only churches and non-profit organizations with at least 10 years of operation in Puerto Rico are permitted to obtain authorization from the Puerto Rico Department of State to conduct charitable gaming activities and each specific activity requires a separate permit.

¹ Statements in this section are based on extensive legal and academic research on gambling laws and the history of gambling in Puerto Rico completed by staff at Consultores en Conducta Humana. Legal references are presented at the end of the report rather than in the text to enhance comprehension of this section by all readers.

² This information was provided by the Puerto Rican Institute of Culture, San Juan, PR.

Another small-stakes form of gambling, known as “Picas,” is a traditional activity that dates back to the Spanish colonial period. This activity and other small-stakes games are permitted under a 1927 law that was amended twice in the mid-1930s. These games are a feature of the Patron Feast week held by each municipality once a year.

Illegal lotteries in Puerto Rico include all types of lottery games not organized or authorized by the Government of Puerto Rico. “Bolita” (known as “the numbers” in English) is the most common illegal lottery game. “Bolita” is similar to the legal Pick Three game and has a monetary prize slightly higher than the legal game discussed above. In some parts of the Island, variations of “bolita” are played in different styles and frequency. Some areas use racetracks to identify the winning number since horse races are run five days a week. Others use the “Pega Tres” winning game or the last three digits of the traditional lottery. Games based on “Pega Tres” are therefore played four times a week and games based on the Traditional Lottery are played once a week.

Other illegal types of gambling in Puerto Rico include illegal horse race betting, dog fights, cockfights outside of licensed arenas and car races outside of officially established tracks. Betting on sports events and on slot machines not regulated by the Government are also illegal in Puerto Rico.

The Current Situation

In 1958, Dr. Richard V. Gilbert, a Harvard economist, was commissioned by the Puerto Rico Government to examine secondary data related to gambling in Puerto Rico (Gilbert, 1958). Dr. Gilbert began his report by describing public attitudes toward gambling at that time. These included charges in the press that gambling was increasing in Puerto Rico at an alarming rate, injuring retail trade, undermining moral standards and diverting people from productive work. As the operator or regulator of legal gambling in Puerto Rico, the Government was held to be responsible for these adverse effects. The shape of the debate about legal gambling in Puerto Rico in the 1950s is strikingly similar to debates occurring around the United States in the 1990s.

Dr. Gilbert’s report on gambling in Puerto Rico addressed questions of the magnitude, growth and economic effects of gambling. Dr. Gilbert also compared trends in legal gambling in Puerto Rico to trends in the United States of America and Great Britain. In 1958, Dr. Gilbert estimated that the volume of all forms of legal gambling in Puerto Rico (now usually referred to as “gross annual wager”) amounted to \$119 million while the gross product of gambling (now usually referred to as “gross gaming revenues”) was \$31 million. Dr. Gilbert cited a 1956 report to the Puerto Rico Lottery by Feliciano-Sturcke-Clapps that estimated annual illegal gambling revenues between \$25 million and \$36 million.

Dr. Gilbert concluded that legal gambling in Puerto Rico represented between 1.2% and 2.5% of the total economy of the Island. He argued further that Puerto Ricans were spending less than 3% of their disposable personal income on gambling activities. Dr. Gilbert found that consumer expenditures on gambling as well as income originating from gambling in Puerto Rico were higher than in Great Britain, but lower than in the United States. However, he found that gross gambling revenues were higher in Puerto Rico than in these other two countries. Finally, Dr. Gilbert found that while total gambling on the Island had increased, this growth was in line with overall growth of the economy, contrary to public attitudes and claims in the press.

In April, 1974, the Puerto Rico Planning Board produced an analysis of gambling in Puerto Rico (Puerto Rico Planning Board, 1974). Statements in this report with regard to variations in gambling participation according to sex, age and economic condition are mirrored in the findings of the present report. For example, the Puerto Rico Planning Board found that men gamble more than women and that people at both extremes of the socioeconomic scale gamble more intensively than those in the middle.

In 1987, a series of 15 articles related to gambling were published in the daily newspaper, El Reportero (Valle, 1987). These articles describe the different gambling activities popular in Puerto Rico and reflect the reporter's concerns about pathological gambling and its effects on Puerto Rican society. For instance, she points out that official information shows that a total of \$1.1 billion was spent on gambling in 1986. In that same year, the official Government budget was \$8.9 billion. While it is unclear whether Valle used an estimate of gross revenues in estimating expenditures on gambling, she interprets the figures to mean that gambling expenditures were equivalent to 12% of the Government's budget.

Despite public concerns, legal gambling is an expanding enterprise in Puerto Rico. According to the Treasury Department, betting on legal types of gambling in Puerto Rico has increased 609% in the 24 years between FY 1970 and FY 1995, from \$343 million to \$2.6 billion. In FY 1970, 36% of the money spent on legal types of gambling was spent at casinos, 31% was spent on the Traditional Lottery, 17% was wagered on horse races and 16% was wagered on cockfights. In FY 1995, 37% of the money spent on legal types of gambling was spent on coin machines, 28% was spent on the Traditional and Electronic Lotteries, 17% was spent at casinos, 12% was wagered on horse races and only 5% was wagered on cockfights.

The same quarter-century has seen an increase of 593% in revenues to the Government of Puerto Rico from legal gambling activities. In FY 1970, the Government received \$37 million in revenues from legal types of gambling on the Island, with nearly three-quarters of these revenues (73%) from the Traditional Lottery and another 24% from horse racing. Only 3% of these revenues came from the casinos and less than 1% came from the cockfighting arenas. In FY 1995, the Government received \$259 million in revenues from legal gambling on the Island. In contrast to FY 1970, only three-fifths of these revenues (61%) came from the Traditional and Electronic Lotteries while 22% came from coin machines and 15% came from horse racing. Less than 1% of these revenues came from the casinos and even less came from the cockfighting arenas.

In 1989, the Hispanía Research Corporation published a report on gambling in Puerto Rico based on data compiled from the Police Department, the Treasury Department and a survey conducted by the firm (Hispanía Research Corporation, 1989). Their analysis showed that Puerto Ricans spent \$1.3 billion on legal types of gambling and another \$900 million on illegal types of gambling in 1988. Their estimate for expenditures on legal gambling in 1988 is the same as the figure reported by the Treasury Department for FY 1988. Total expenditures on legal gambling in 1988 represented 8% of personal disposable income in that year.

The figures from the Hispanía Research Corporation can be contrasted with estimates cited by Dr. Gilbert from Lottery information in 1956. The 1956 report to the Lottery estimated that Puerto Ricans spent \$31 million on legal gambling and an additional \$25 million to \$36 million on illegal types of gambling. Dr. Gilbert estimated that expenditures on legal gambling in Puerto Rico represented approximately 3% of personal disposable income (Gilbert, 1958). If these figures are accurate, they suggest that expenditures on legal gambling in Puerto Rico increased approximately 3,400% in that 33-year period while the proportion of disposable income spent on legal gambling increased by approximately 170%.

For the most part, concerns about changes in the availability of legal gambling in Puerto Rico have focused on the impacts of such changes on illegal gambling or on existing legal forms of gambling rather than on the potentially negative impacts that gambling can have on individuals, families and communities. In 1974, the Puerto Rico Planning Board supported the expansion of games and hours at Puerto Rico casinos on the presumption that this would help eliminate illegal gambling in the Island. In 1990, Alfredo Castro Vélez suggested that "bolita" was being used to finance drug traffic in the Island (Castro Vélez, 1990).

In 1994, the Hon. Manuel Díaz Saldaña testified before the Puerto Rico Legislature about the expansion of legal gambling in Puerto Rico (Díaz Saldaña, 1994). Secretary Díaz Saldaña argued that the expansion of legal gambling would not only generate much needed revenues for the Government but would also serve to fight the presence of illegal gambling on the Island. The Secretary estimated that in FY 1993, expenditures on illegal gambling were \$4.3 billion with 50% of the money spent on illegal coin machines and 26% spent on "bolita." The Secretary stressed the role that these funds play in fostering other criminal enterprises including drug and arms trafficking as well as money laundering.

Although legal gambling is perceived by many in the Puerto Rico Government as a means to eliminate illegal gambling, public opinion does not support this notion. However, recent actions of the Treasury Department in establishing the helpline and in funding the prevalence research reported here will help ensure that awareness of the risks of gambling will increase among the citizens of Puerto Rico.

Defining Problem and Pathological Gambling

There are a number of terms used in this report that will not be familiar to our readers. There are other terms used in this report that may be familiar to readers but are used here in a more precise manner than by most readers. To assure a common understanding of the terms used in this report, we feel that it is important to define some of the terms used throughout this report.

Gambling

Since the 1970s, legal gambling has become a popular recreational pastime throughout North America. The majority of people who participate in legal gambling are **social gamblers** who gamble responsibly, for entertainment and to socialize with friends and family (National Council on Problem Gambling, 1997).

Problem and Pathological Gambling

The term **problem gambling** has been used in different ways. 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 of this progressive disorder (Lesieur & Rosenthal, 1991). 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, 1997).

Pathological gambling lies at one end of a spectrum of problem 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 A 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 brief 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 the population 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. This information is useful in planning for the availability of gambling opportunities in the future as well as in targeting services for problem gamblers.

The great majority of surveys of gambling and problem gambling have been conducted by telephone.³ The number of interviews completed in each jurisdiction is determined by balancing available resources, confidence intervals and the size of the population. In general, a sample of eligible telephone numbers is purchased from a reputable company although, in some cases, the survey company in a particular jurisdiction has used its own system to generate eligible telephone numbers. Only one respondent is interviewed per household and the "next birthday" method is usually used to recruit respondents randomly within households.

In contrast to other jurisdictions, the Puerto Rico survey was conducted through household interviews rather than by telephone. The decision to conduct household rather than telephone interviews in Puerto Rico was based on the high proportion of families in Puerto Rico without telephone service. Since close to one-third of the population of the Island has no access to telephone service, it would have been impossible to obtain a representative sample of Puerto Rico residents by means of a telephone survey. In addition, the Puerto Rico survey had to be conducted in Spanish which meant that a careful translation of the English questionnaire was required.

The baseline survey of gambling and problem gambling in Puerto Rico was completed in seven stages. These stages included:

- developing the sample design
- translating and back-translating the questionnaire
- conducting a pilot survey
- completion of approximately 1,500 interviews in the community
- coding the data
- analysis of the data
- preparation of this report

Sample Design

In the first stage of the project, Consultores en Conducta Humana consulted with various demographers and sociologists in Puerto Rico and reached a consensus regarding the sampling approach required for a survey in Puerto Rico. These experts agreed that gambling patterns would be closely related to the social and geographic environment of Puerto Rico and that the sample should be stratified both by size of municipality and by the ratio of urban to rural dwellers in different municipalities.

According to the United States Census of the Population, there were 3,522,037 inhabitants of Puerto Rico in 1990 residing in 78 municipalities. Seven out of every ten residents in Puerto Rico are urban dwellers and three out of every ten are rural dwellers. Further, the 78 municipalities in

³ Baseline studies of gambling and problem gambling have been carried out in 32 United States and Canadian jurisdictions as well as in Australia, New Zealand and Spain. Replication surveys based on the South Oaks Gambling Screen have been carried out in nine jurisdictions.

Gambling and Problem Gambling In Puerto Rico

Puerto Rico are classified according to data from the Bureau of the Census into three categories: **metropolitan areas** (over 90,000 population), **large municipalities** or towns (40,000 to 90,000 population) and **small municipalities** or towns (less than 40,000 population). These different municipal categories have different proportions of urban and rural residents. The metropolitan areas of Puerto Rico are similar to metropolitan areas in the United States while the towns are more rural and traditional patterns of life prevail. In order to develop a realistic portrait of Puerto Rico, we had to achieve a sample that would represent these different environments. **Table 1** shows the distribution of the population of Puerto Rico based on the 1990 census as well as the number of municipalities in each category.

Table 1: Population Distribution in Puerto Rico

	Urban %	Rural %	Total %
Metropolitan (N=10)	94.2	5.8	43.7
Large Towns (N=10)	75.7	24.3	14.9
Small Towns (N=58)	45.3	54.7	41.4
Total	71.2	28.8	100.0

The sampling design used a double stratification process to obtain adequate representation by type of municipality as well as by urban *versus* rural residence. A sample of 1,500 was considered appropriate in order to maintain comparability with similar surveys done in other jurisdictions as well as to obtain an acceptable level of confidence ($\pm 2.5\%$) in the overall results of the survey. Based on these considerations, the sample frame was developed as follows:

Table 2: Sample Distribution in Puerto Rico

	Urban (N)	Rural (N)	Total (N)
Metropolitan (N=3)	618	38	656
Large Towns (N=3)	169	55	224
Small Towns (N=8)	280	340	620
Total	1,067	433	1,500

Once the sample sizes for urban and rural groups in each type of municipality were identified, a subset of municipalities from each category was selected. Three metropolitan municipalities, three large towns and eight small towns were randomly selected from the list of municipalities and the following municipalities were included in the survey: San Juan, Ponce and Caguas (metropolitan); Aguadilla, Río Grande and Vega Baja (large towns); and Barranquitas, Canóvanas, Cidra, Juncos, Manatí, Rincón, Santa Isabel and Yabucoa (small towns).

Instructions to the interviewers were to interview the household member who was 18 years old or over with the most recent birthday. If that person was not in the household or could not be interviewed, instructions were to interview the second person in that household aged 18 or older with the most recent birthday. The interviewers were required to select different socio-economic areas within the urban and rural locations of each municipality. This was done to assure that appropriate proportions of poor and well-to-do households were included in the survey.

A total of 1,506 interviews were completed in March and April of 1997. Information from the interviewers shows that approximately 45 individuals (representing 3% of the completed sample) refused to participate in the study. This represents an excellent response rate; far better than response rates typically achieved with mail or telephone surveys.

Sample respondents were compared to the Puerto Rico population along three dimensions: gender, age and urban-rural distribution. There were no statistically significant differences between the sample and the total population in terms of any of these variables. Since the sample was so similar to the Puerto Rico population in terms of size of municipality, urban-rural distribution, gender and age, it was not necessary to use post-stratification weights to adjust the characteristics of the sample.

Questionnaire

The questionnaire for the survey in Puerto Rico was provided by Gemini Research and has been used in many other surveys in the United States, Canada and internationally. The questionnaire is composed of three sections. The first section included questions about 13 different types of gambling available to residents of Puerto Rico. 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 any type 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. The South Oaks Gambling Screen is the tool most often used by clinicians and researchers to identify individuals as problem or pathological gamblers. The final section of the questionnaire included questions about the demographic characteristics of each respondent (see Appendix B for a copy of the questionnaire).

Since an important purpose of the survey in Puerto Rico was to develop information comparable to other jurisdictions, any changes to the questionnaire developed for use in other jurisdictions were limited. The items from the South Oaks Gambling Screen were required, regardless of their performance, in order to use a standard measure to classify respondents as problem or pathological gamblers. The demographic items were also required for comparability with other jurisdictions. The only flexibility was in the types of gambling to be included and in the amount of information about respondents' gambling involvement.⁴

For the survey in Puerto Rico, the questionnaire was translated into Spanish by Atabex Translation Specialists, Inc., a company originally based in Washington, D.C. The Spanish translation of the questionnaire was analyzed by three experts, including Dr. Olga Elena Resumil, Professor of Penal Law, University of Puerto Rico - Law School; Dr. Nelson Miranda, Professor of Sociology and Research Methods, University of Puerto Rico - Cayey; and Dr. Rubén Vélez, Professor of Clinical Psychology, Interamerican University of Puerto Rico. These experts were asked to assess the accuracy of the translation and the content validity of the items. Agreement among these parties about the specific items of the questionnaire was over 90%.

The Spanish questionnaire was then translated back into English by TRENDS Corporation which contracted this work to Dr. José Sánchez Lugo, Professor of Education at Sacred Heart College, Santurce and Professor Sara Santiago M.A., Professor of Educational Counseling at Metropolitan University, Río Piedras. Both of these researchers work at the Mental Health and Anti-Addiction Services Administration in Puerto Rico and both completed their graduate studies in the United States. These translators did not have access to the original English version of the questionnaire. The back-translation was reviewed by Dr. Rachel A. Volberg and Dr. Pedro A. Vales, who agreed that this version corresponded closely to the original English questionnaire (see Appendix B for a copy of the back-translation as well as the original questionnaire).

⁴ There was no effort made in the survey to separate questions about wagering on horse races and cockfights. This was done in order to maintain comparability with questions about parimutuel wagering in other jurisdictions. In retrospect, and given the large role that these types of gambling appear to play in the prevalence of problem and pathological gambling in Puerto Rico, it would have been preferable to separate these two activities. This should certainly be done in any future replication of the Puerto Rico survey.

Pilot Test

A pilot test of the Spanish questionnaire was completed with 50 households to test the efficacy of the translation and to enhance the clarity and comprehension of the final questionnaire. Since we already knew that the South Oaks Gambling Screen had good reliability and validity in English, reliability analysis of the data from the pilot test was done simply to test whether the instrument was operating as we expected in the Spanish translation. Since the pilot data were available prior to the entire data set, we elected to perform a reliability analysis of the pilot test data in order to assure ourselves as quickly as possible of the quality of the translation and, thus, of the overall results of the survey.

There are different kinds of error inherent in any set of data. While ***random error*** is addressed by using statistical techniques to reject the “null hypothesis” and to calculate the probability that a particular result is not due to random error, the level of ***measurement error*** is assessed by looking at the reliability and validity of the instrument (Litwin, 1995). The ***reliability*** of an instrument refers to the ability to reproduce the results of the application of the test. The ***validity*** of an instrument refers to the ability of the instrument to measure what it is intended to measure. The availability of the data from the pilot test provided an opportunity to examine the reliability of the South Oaks Gambling Screen in Spanish translation. In later sections of the report, we examine the validity of the South Oaks Gambling Screen in the Puerto Rico population.

Dr. Rubén Vélez García was asked to undertake the reliability analysis of the pilot test data. In preparing this analysis, Dr. Vélez García clustered the data from the questionnaire into 15 different groups excluding the socio-demographic variables. The first 13 clusters were made up of questions about each type of gambling; the remaining two clusters were composed of the South Oaks Gambling Screen items and a group of miscellaneous items. With the exception of the South Oaks Gambling Screen which contains 20 items, all of the other clusters included between five and seven items. Reliability analysis was performed for each cluster as well as for the questionnaire as a whole, since this was the principal unit of measurement.

The initial reliability analysis of the pilot test data showed that the coefficient alpha was .50 for the entire questionnaire and .89 for the South Oaks Gambling Screen while the individual clusters all obtained zero values. In general, .70 is regarded as representing good reliability (Litwin, 1995). While this analysis showed that the South Oaks Gambling Screen had high reliability, the remaining clusters and the overall questionnaire had a lower than acceptable reliability.

Examination of the remaining clusters and the entire questionnaire revealed a common element responsible for the low reliability values. In a consistent fashion, the questions responsible for the degradation of the alpha value were those related to gambling expenditures. When the reliability coefficients were re-computed excluding these questions, the coefficient alpha was raised to .82 for the entire questionnaire which is an excellent value. The alpha values for the individual gambling clusters were raised to nearly .50 which is adequate, given the small number of items in each cluster. On the basis of this analysis, we concluded that the Spanish version of the questionnaire is highly reliable with the exception of the questions related to gambling expenditures and income. Responses to these items should be treated with extreme caution.

Interviewer Training and Quality Assurance

A group of 13 experienced interviewers were recruited and trained by Consultores en Conducta Humana to administer the questionnaire. The day-long training session, led by Dr. Pedro A. Vales, was held in early March and was attended by Dr. Rachel A. Volberg as well as by Dr. Ketty Ocasio García, Director of Program PODEMOS. Nine of the interviewers had Masters Degrees in Social Work, Criminal Justice, Education, Human Resources or Public Health. The

other four individuals were all experienced interviewers with Bachelors Degrees in Communications, Business Administration or Social Work.

The interviewers were assigned into teams and to the different municipalities selected for the study. During the interview process, interviewers were required to physically identify one out of every ten households for a total of 150 households. After the interviews were completed, the supervisor for the project, Mrs. Doris I. Flores, M.S.W., M.A., randomly visited 111 of these addresses to ask if anyone in the household had been interviewed for a gambling study during March, 1997. All 111 households confirmed that such an interview had been done.

Data Coding, Analysis and Reporting

The data for the Puerto Rico survey were recorded on paper. The first step in the analysis of the data was to transfer the responses from the paper questionnaires to a computer data base. To assure the quality of the process, coding of the questionnaires was done by two Masters Degree assistants at Consultores en Conducta Humana who did not participate in the interviews. This represents an important level of quality control and validation since the coders were more likely than the interviewers to identify mistakes or errors in the data on the questionnaires. Each of the coders was responsible for reviewing and revising the work of the other. In addition, the supervisor for the project, Mrs. Doris I. Flores, checked a proportion of the coded questionnaires to ensure the quality of the work.

Once the data were entered on the computer, initial distributions were run on the sample categories of metropolitan urban, metropolitan rural, large town urban, large town rural, small town urban and small town rural. The distributions were generated using SPSS-X (Statistical Package for Social Scientists). These distributions were examined and evaluated for cohesiveness before the cleaned data set was forwarded to Gemini Research. The data were then analyzed in greater detail at Gemini Research using SPSS 7.0 for Windows.

For easier comparisons of the Puerto Rico data with other jurisdictions, detailed demographic data on age, ethnicity, education, income and marital status were collapsed by Gemini Research to have fewer values. This was only done after statistical tests on the more detailed data showed few, if any, significant differences. Age was collapsed into four groups ("18 to 20," "21 to 29," "30 to 54" and "55 and Over") for purposes of analysis. Ethnicity was collapsed from six groups into three groups ("Puerto Rican," "Continental US" and "Other" which includes Central American, South American, Hispanic Antilles, non-Hispanic Antilles, Canadian, European, Asian and Other). The category "Continental US" was used if the respondent identified him/herself as such. This group of respondents may be viewed as identifying themselves with United States culture and does not refer to their ancestry or where they were born.

Marital status was collapsed from five groups into four groups ("Married," "Widowed," "Separated/ Divorced" and "Never Married"). Education was collapsed from five groups into two groups ("Less than High School" and "High School Graduate"). Employment was collapsed from seven groups into three groups ("Working," "Unemployed" and "Other" which includes respondents who are going to school, keeping house, disabled or retired). Household income was collapsed from ten groups into four groups ("Less than \$15,000," "\$15,00 to \$25,000," "\$25,000 to \$50,000" and "\$50,000 or More").

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 in this report that contain demographic data, asterisks in the right-hand column indicate that ***one*** of the figures in that category is significantly different from other figures in the same category.

Gambling and Problem Gambling In Puerto Rico

There are numerous comparisons throughout the report between the findings from Puerto Rico and findings from similar surveys of gambling and problem gambling in the United States. Comparisons between the findings from Puerto Rico and “other jurisdictions” should be interpreted to mean comparisons between Puerto Rico and the general patterns identified across all of the other jurisdictions where similar surveys have been completed. These jurisdictions include:

Table 3: Gambling and Problem Gambling Surveys in the United States and New Zealand

State	Abbreviation	Baseline	Replication
California	CA	1990	---
Colorado	CO	1997	---
Connecticut	CT	1991	1996
Georgia	GA	1994	---
Iowa	IA	1989	1995
Louisiana	LA	1995	---
Maryland	MD	1988	---
Massachusetts	MA	1989	---
Michigan	MI	1997	---
Minnesota	MN	1990	1994
Mississippi	MS	1996	---
Montana	MT	1992	---
New Jersey	NJ	1988	---
New York	NY	1986	1996
North Dakota	ND	1992	---
Oregon	OR	1997	---
South Dakota	SD	1991	1993
Texas	TX	1992	1995
Washington State	WA	1992	---
New Zealand	NZ	1991	---

GAMBLING IN PUERTO RICO

To assess the full range of gambling activities available to Puerto Rico residents, the questionnaire for the survey collected information about 13 different wagering activities. Respondents were asked if they had ever played or bet money on the following activities:

- traditional and electronic lottery
- at a casino
- bingo
- charitable games (not including bingo)
- card games for money not at a casino
- horses, cockfights, dogs or other animals (at the track, cockfight arena, betting centers or with a bookie)
- slot machines, poker machines or other gambling machines not at a casino
- games of skill, such as bowling, pool, golf, dominoes, chess, regattas or fishing tournaments
- dice games not at a casino
- stock or commodities markets
- sports events such as baseball, basketball, tennis or volleyball
- numbers (“bolita” or “bolipul”)
- any other type of gambling

Gambling in the General Population

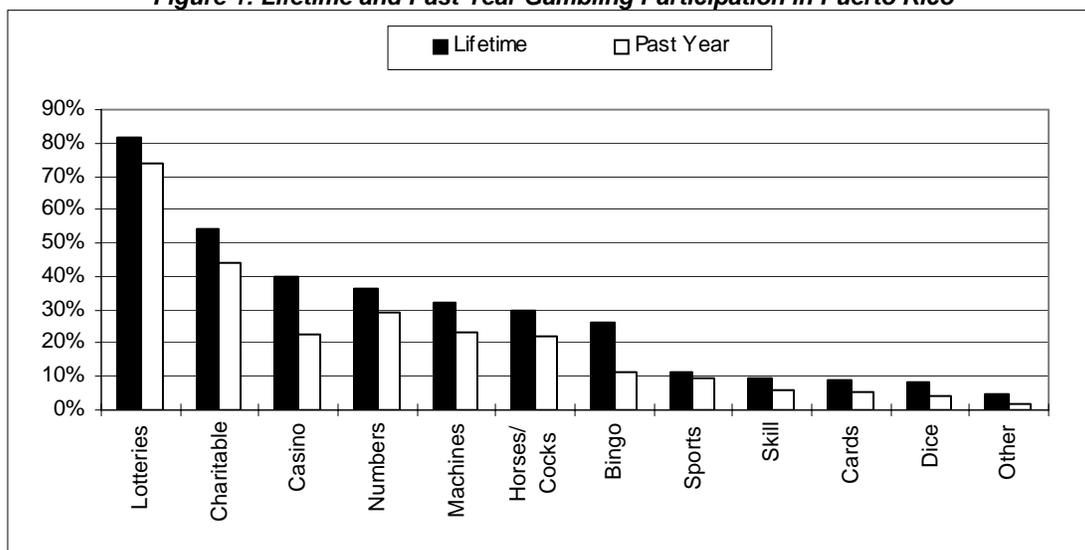
In every recent survey of gambling and problem gambling, the majority of respondents acknowledge participating in one or more of the gambling activities included in the questionnaire. In the United States, the proportion of respondents who have ever gambled ranges from 64% in Mississippi in 1996 to 92% in New Jersey in 1989 (Volberg, 1997a; Volberg & Steadman, 1989). In 1997, 93% of the respondents in Puerto Rico acknowledged participating in one or more of 13 gambling activities.

Figure 1 on the following page shows lifetime and past-year participation rates for all of the types of gambling included in the survey except stocks and commodities. Lifetime participation among Puerto Rico respondents is highest for lotteries, charitable games (not including bingo) and casinos. Lifetime participation rates are also high for the illegal numbers game (“bolita”), gambling machines not at casinos, parimutuel wagering on horses and cockfights, and bingo. Lifetime participation rates for all other types of gambling are much lower.

The majority of respondents who have ever gambled in Puerto Rico have done so in the past year. While 93% of the respondents acknowledged lifetime gambling, 88% of the respondents acknowledged gambling in the past year. Past-year participation is highest for the lotteries and participation rates for charitable games, casinos, the numbers, gambling machines and wagering on horses and cockfights are also high.

In addition to information on past year participation, respondents were asked how many times a month they usually participated in any type of gambling they had done in the past year. Monthly participation rates were highest for horse race and cockfight wagering (7.0 times per month) and lowest for wagering on sports (2.2 times per month). The mean for wagering on the lotteries was 4.8 times per month while the mean for wagering at a casino was 2.6 times per month.

Figure 1: Lifetime and Past Year Gambling Participation in Puerto Rico



Patterns of Gambling Participation

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

- **non-gamblers** who have never participated in any type of gambling (7% of the total sample);
- **infrequent gamblers** who have participated in one or more types of gambling but not in the past year (5% of the total sample);
- **past-year gamblers** who have participated in one or more types of gambling in the past year but not on a weekly basis (26% of the total sample); and
- **weekly gamblers** who participate in one or more types of gambling on a weekly basis (61% of the total sample).

The pattern of gambling participation in Puerto Rico, with the majority of respondents participating once a week or more in at least one type of gambling, is quite distinct from most other United States jurisdictions where similar surveys have been done. Weekly participation rates in other states are substantially lower than in Puerto Rico and range from 7% in Mississippi to 38% in Louisiana (Volberg, 1995c, 1997a). However, this pattern of gambling participation is quite similar to the 90% gambling participation rate identified in a recent survey for the Electronic Lottery (Consultec, 1997).

Table 4 on the following page shows differences in the demographic characteristics of non-gamblers, infrequent gamblers, past-year gamblers and weekly gamblers in Puerto Rico as well as differences in the mean number of gambling activities these groups have ever tried.

Gambling and Problem Gambling In Puerto Rico

Table 4: Demographics of Gamblers in Puerto Rico

		Non-Gamblers %	Infrequent Gamblers %	Past Year Gamblers %	Weekly Gamblers %	
		(N=109)	(N=78)	(N=394)	(N=925)	
Gender	Male	43.1	44.9	35.3	55.6	**
	Female	56.9	55.1	64.7	44.4	
Age	18 - 20	5.6	15.4	4.3	4.4	**
	21 - 29	4.6	16.7	20.8	17.1	
	30 - 54	72.2	37.2	56.3	52.9	
	55 and over	17.6	30.8	18.5	25.6	
Ethnicity	Puerto Rican	89.9	100.0	94.1	96.2	**
	Continental US	10.1	---	3.1	2.0	
	Other	---	---	2.8	1.8	
Marital Status	Married	87.2	44.9	64.7	63.8	**
	Widowed	---	2.6	5.8	4.3	
	Divorced/Separated	5.5	12.8	11.9	13.0	
	Never Married	7.3	39.7	17.5	19.0	
Education	Less than HS	22.9	38.5	24.4	23.1	*
	HS and Over	77.1	61.5	75.6	76.9	
Employment	Employed	49.5	34.6	54.3	57.8	**
	Unemployed	5.5	6.4	6.3	5.1	
	Other	45.0	59.0	39.3	37.1	
Income	Less than \$15,000	45.3	54.0	45.9	41.6	*
	\$15,000 to \$25,000	36.8	18.0	29.1	31.3	
	\$25,000 to \$50,000	17.9	24.0	23.4	21.8	
	\$50,000 or More	---	4.0	1.6	5.2	
Mean Lifetime Gambling Activities		---	2.1	3.0	4.2	**

* Significant (p<=.05)

** Highly significant (p<=.01)

Table 4 shows a distinct pattern of gambling participation in Puerto Rico. In other states where similar surveys have been done, past- year and weekly gamblers are significantly more likely than other respondents to be young employed men with relatively high income. In Puerto Rico, while weekly gamblers are somewhat more likely to be male than female, past-year gamblers are significantly more likely than other groups of gamblers or the general population to be women. The greater involvement in gambling in the past year by women is primarily due to their past year participation in wagering on charitable games (not including bingo).

As in other states, past-year and weekly gamblers in Puerto Rico are significantly more likely to be employed than respondents who gamble less frequently or not at all. As in other states, non-gamblers and infrequent gamblers are more likely than respondents who gamble more frequently to be older married women and to be keeping house, retired or disabled. These individuals are somewhat less likely to have completed high school. Finally, the table shows that the average number of different activities ever tried increases significantly with the frequency of a respondent's current gambling.

The information presented in this and the following four paragraphs represents a summary of detailed data presented in tables at the end of this report (see Appendix C). In Puerto Rico, men are significantly more likely than women to have wagered in the past year on the lottery, at a casino, on horse races or cockfights, on illegal gambling machines, on dice games not at a casino, sports and “bolita.” Men and women are just as likely to have wagered in the past year on bingo and on card games not at a casino. Women are significantly more likely than men to have wagered in the past year on charitable games (not including bingo).

Respondents under the age of 30 are significantly more likely than older respondents to have wagered in the past year at a casino, on bingo, on charitable games (not including bingo), illegal gambling machines, and sports. It is interesting to note that respondents aged 21 and over are significantly more likely than younger respondents to have wagered in the past year on horse races or cockfights and on “bolita.”

There are no significant differences among ethnic groups in Puerto Rico in terms of past year participation although this may be due to the small size of the non-Puerto Rican groups. It is interesting to note that while none of the Continental US respondents (N=30) have wagered in the past year on horse races or cockfights, 23% of the Puerto Rican respondents and 67% of the “Other” respondents (N=27) have done so.

There are numerous significant differences in past year gambling participation based on marital status. Never married respondents are significantly more likely than other respondents to have wagered at a casino in the past year and on card games not at a casino. Divorced or separated respondents are the most likely to have wagered on horse races or cockfights in the past year. Widowed and divorced or separated respondents are significantly less likely than married or never married respondents to have wagered on bingo and on charitable games in the past year. Married and widowed respondents are significantly less likely than divorced, separated and never married respondents to have wagered in the past year on illegal gambling machines, games of skill, dice games not at a casino and sports. Widowed respondents are the most likely to have wagered on “bolita” in the past year.

Respondents from urban areas are significantly more likely than those from rural areas to have wagered at a casino in the past year as well as on sports. In contrast, respondents from rural areas are significantly more likely than urban respondents to have wagered on charitable games (not including bingo). Respondents from metropolitan areas are the most likely to have wagered on illegal gambling machines in the past year, followed by respondents from small towns. Although it is important to interpret these data with caution, respondents with annual household incomes over \$25,000 are significantly more likely than less well-to-do respondents to have wagered at a casino in the past year as well as on card and dice games not at a casino, on games of skill, on horse races or cockfights and on sports.

Expenditures

Information about respondents’ expenditures on gambling in Puerto Rico must be treated with extreme caution. This is because of the low reliability of these items, identified in our analysis of data from the pilot test (see the discussion of the Pilot Test on Page 10). The analysis of expenditure data presented here is intended only as a means of confirming the relative importance of the different types of gambling in Puerto Rico and not as a method for ascertaining actual spending on different types of gambling. There are further problems with expenditure data in general. These include questions about data that are based on recollection and self-report as well as uncertainty about the tacit definitions that people have for the term “spending” in relation to different types of gambling.

To assess expenditures on gambling in the general population, the **total monthly expenditure** for each gambling activity is calculated. This is done by summing the amount of money that each

respondent reported spending in a typical month 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 in the past month 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 in the past month per respondent.

Adjustments to Expenditures

While the stockmarket and commodities trading are not universally regarded as a gambling activity, there are people who experience difficulties due to their involvement in these activities. For this reason, stocks and commodities are routinely included in the questionnaire for gambling surveys. In every other jurisdiction, amounts spent on stocks and commodities reflect large amounts of money spent by a small number of respondents.

In Puerto Rico, the amount spent on stocks and commodities is extremely small. Only four respondents in Puerto Rico had spent money on stocks or commodities in the past year and their total estimated monthly expenditures amounted to only \$710. Further analysis shows that all four of these respondents are from small towns in Puerto Rico. This suggests that expenditures on stocks and commodities in Puerto Rico are related to the common agricultural practice of securing prices for crops in advance rather than representing a true gambling activity. In calculating total monthly expenditures on gambling in Puerto Rico, we have excluded expenditures on stocks and commodities in order to permit comparisons of expenditure data from Puerto Rico with data from other states.

A second important adjustment to the expenditure data from Puerto Rico was to exclude the expenditures of eight respondents who claimed to spend very large amounts at casinos in a typical month. This adjustment was made for two reasons. First, the expenditures of these eight individuals had an extreme impact on our analysis of gambling expenditures for the sample as a whole. Second, an examination of the demographic characteristics of these individuals led us to question the truth of their claims.⁵

Variations in Expenditures

Using the approach detailed above, we calculate that respondents in Puerto Rico (N=1,506) spent an average of \$177 in a typical month or \$2,120 in a year on gambling activities.⁶ Even without the expenditures of the eight outliers discussed above, this average monthly expenditure in Puerto Rico is far higher than monthly expenditures identified in any other jurisdiction. It is worth reiterating that the information on gambling expenditures in Puerto Rico should be interpreted with extreme caution because of the method used to conduct the interviews as well as the low reliability of these data.

⁵ All of these respondents were middle-aged, divorced or separated men from outside Puerto Rico living in metropolitan areas and claiming annual incomes under \$15,000. However, all of these men claimed that they spent \$20,000 or more at casinos in a typical month. The adjustment was made by calculating the casino expenditures of these respondents as zero.

⁶ This figure is substantially higher than the 1989 estimate of \$685 per capita annual expenditures on gambling (Hispanía Research Corporation, 1989).

Gambling and Problem Gambling In Puerto Rico

There are several possible explanations for the very high reported expenditures in Puerto Rico. It is possible that the respondents in Puerto Rico did not interpret our questions about gambling expenditures in the same way that respondents in other jurisdictions have done and thus provided information that is not comparable. It is also possible that these data reflect the fact that, as with Native Americans in North Dakota, the respondents in Puerto Rico were interviewed in person and may have been more willing to acknowledge high expenditures. Future research may shed light on these issues and permit us to interpret these data with greater confidence.

Table 5 shows total reported monthly expenditures on different types of gambling in Puerto Rico 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 5: Reported Monthly Expenditures on Gambling

	Monthly Expenditure \$	% of Total
	(N=1,506)	
Horse Races and Cockfights	74,711	27.9
Casino	50,388	18.8
Lotteries	47,805	17.9
Other	20,807	7.8
Numbers	17,131	6.4
Sports Events	15,638	5.8
Card Games	12,374	4.6
Charitable (not bingo)	8,257	3.1
Gambling Machines	8,050	3.0
Bingo	4,953	1.8
Dice Games	4,255	1.6
Games of Skill	2,894	1.1
Total	267,263	100.0

Table 5 shows that monthly expenditures on three types of gambling account for 65% of reported expenditures on gambling. Expenditures on horse races and cockfights account for over one-quarter (28%) of total gambling expenditures. Monthly expenditures at casinos account for another 19% and expenditures on the lotteries account for 18% of total monthly gambling expenditures. Expenditures on all other types of gambling are much lower and none represent more than 10% of the total.

In most states, a small proportion of the respondents (between 5% and 10%) report spending relatively large amounts on gambling in a typical month. In contrast to other states, 27% of the respondents in Puerto Rico report spending \$100 or more on gambling in a typical month. This is more than twice the proportion of heavy spenders identified in other states. Not surprisingly, this group of respondents accounts for 90% of reported monthly expenditures on gambling in Puerto Rico.

Respondents in the highest spending group in Puerto Rico are significantly more likely to be male and divorced or separated than respondents in lower spending groups. These higher spending respondents are significantly more likely than lower spending respondents to have graduated high school, to be employed and to have annual household incomes over \$25,000.

Gambling and Problem Gambling In Puerto Rico

There are statistically significant differences in monthly expenditures on gambling across demographic groups in Puerto Rico. **Table 6** on the following page shows that men in Puerto Rico estimate that they spend more than twice as much on gambling in a typical month as women. Respondents who have not graduated from high school report spending significantly less than those who have a high school diploma or have attended college. Respondents who are employed report spending significantly more on gambling than respondents who are unemployed or those who are keeping house, retired or disabled. Finally, respondents with annual household incomes over \$50,000 report spending significantly more on gambling than respondents with lower annual household incomes. There are no significant differences in monthly expenditures on gambling by age, ethnicity or marital status among the Puerto Rico respondents.

Table 6: Monthly Gambling Expenditures by Different Groups in Puerto Rico

	Mean Expenditures \$	
	(N=1,506)	
Male	257.19	**
Female	101.46	
Less than HS	102.48	**
HS or higher	199.63	
Employed	258.49	**
Unemployed	112.72	
Other	73.13	
Less than \$15,000	145.24	**
\$15,000 to \$25,000	191.97	
\$25,000 to \$50,000	106.86	
\$50,000 or More	1,308.89	

• Significant ($p \leq .05$)

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

Gambling Preferences

For several types of gambling, respondents who acknowledged participation in the past year were asked about their preferences for particular products or places. In Puerto Rico, these types of gambling included playing the lotteries and going to casinos.

Lotteries: Respondents who acknowledged playing the lotteries in the past year were asked which games they preferred. Among respondents who played the lotteries in the past year (N=1,117), 53% indicated that “Loto” and “Pega Tres” were their preferred games while 22% indicated that the “Ordinaria” was their preferred game and only 5% indicated that the “Extraordinaria” was their preferred game. A substantial proportion of the respondents who had played the lotteries in the past year (20%) indicated that they had more than one preferred lottery game.

There is a significant difference in average expenditures among lottery players based on their preferred game. Respondents who indicated that the “Ordinaria” was their preferred lottery game or that they preferred more than one lottery game report spending significantly more in a typical month than respondents whose preference is for “Loto” or the “Extraordinaria.” Players who prefer the “Ordinaria” or more than one game acknowledge spending an average of \$60 in a typical month compared to the average of \$26 acknowledged by respondents whose preference is for “Loto” or the “Extraordinaria.”

Casinos: Respondents who had gambled at a casino in the past year were asked where they usually went to gamble at a casino. Among respondents who had been to a casino in the past year (N=341), 53% were from the metropolitan areas, 11% were from large towns and 36% were from small towns. Given their geographic distribution, it is not surprising that the majority of the respondents who had been to a casino in the past year preferred to go to a casino in San Juan (39%) or in Ponce (30%) while a small group (12%) preferred to go to a casino in the Western part of the Island.

There are significant differences in the amount that respondents report spending at casinos based on where they prefer to go. Respondents who prefer to go to casinos in San Juan report spending an average of \$185 in casinos in a typical month while respondents who prefer to go to casinos in Ponce report spending an average of \$101 in casinos in a typical month and those who prefer to go to a casino in the Western part of the Island report spending an average of \$51 in casinos in a typical month.

In terms of game preferences, 81% of respondents who had been to a casino in the past year prefer to play slot machines, 6% prefer card games and 2% prefer other games. A substantial proportion of these respondents (12%) prefer more than one casino game. While respondents who prefer slot machines report spending an average of \$120 in casinos in a typical month, respondents who prefer more than one game report spending significantly more with an average of \$235 in a typical month and respondents who prefer card games report spending an average of \$448 in casinos in a typical month.

Expenditures on casino slot machines are far higher than expenditures on illegal slot machines. Among respondents who have wagered on illegal slot machines in the past year (N=351), expenditures average \$25 compared to \$120 for respondents who have gambled at a casino in the past year and prefer slot machines.

Summary

In this section, we examined patterns of gambling participation in the Puerto Rico sample as a whole. In 1997, 93% of the respondents in Puerto Rico acknowledge participating in one or more gambling activities at some time, 88% acknowledge participating in one or more gambling activities in the past year and 61% acknowledge participating in one or more gambling activities once a week or more. Lifetime participation among Puerto Rico respondents is highest for the lotteries, charitable games (not including bingo) and casinos while past year participation is highest for the lotteries, charitable games (not including bingo) and "bolita."

Typical monthly expenditures on horse races and cockfights account for 28% of total gambling expenditures while casino expenditures account for another 19% and expenditures on the lotteries account for 18% of total monthly gambling expenditures. As in other states where similar surveys have been conducted, young men with relatively high levels of education and income report spending the largest amounts of money on gambling.

Relationships between Puerto Rican respondents' preferences for lottery and casino games and their estimated expenditures on these types of gambling are interesting. Respondents who prefer the "Ordinaria" or more than one lottery game spend significantly more than other lottery players while respondents who prefer card games or more than one casino game spend significantly more at casinos than respondents who prefer slot machines. In the next section, we turn our attention to the prevalence of problem and probable pathological gambling in the Puerto Rico sample.

PROBLEM AND PATHOLOGICAL GAMBLING IN PUERTO RICO

As noted in the section *Defining Problem and Pathological Gambling* on Page 5, individuals are classified as **problem gamblers** or **probable pathological gamblers** in prevalence surveys on the basis of their responses to the South Oaks Gambling Screen items. Research on the performance of the South Oaks Gambling Screen has shown that the lifetime screen is very good at detecting pathological gambling among those who currently 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 (see Appendix A for a full discussion of the accuracy of the SOGS).

Following established criteria for discriminating between respondents without gambling-related difficulties and those with moderate to severe problems (Abbott & Volberg, 1996; Lesieur & Blume, 1987), Puerto Rico 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:

- **lifetime problem gamblers** are those respondents who score 3 or 4 points on the lifetime SOGS items. In Puerto Rico, 6.4% ($\pm 1.2\%$) 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 Puerto Rico, 7.4% ($\pm 1.3\%$) 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 Puerto Rico, 4.4% ($\pm 1.0\%$) 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 Puerto Rico, 6.8% ($\pm 1.3\%$) of the respondents scored as current probable pathological gamblers.

In the tables that follow in this and the next section, lifetime and current problem and probable pathological gamblers are grouped together. This approach is based on discriminant analysis that has established a strong and significant separation between non-problem gamblers and those who score as problem and probable pathological gamblers (Abbott & Volberg, 1996; Volberg & Abbott, 1994).

Lifetime Prevalence

According to the 1990 census, the population aged 18 and over in Puerto Rico is 2,367,712 individuals. Based on these figures, we estimate that between 123,100 (5.2%) and 180,000 (7.6%) Puerto Rico residents aged 18 and over can be classified as lifetime problem gamblers. In addition, we estimate that between 144,400 (6.1%) and 206,000 (8.7%) Puerto Rico residents aged 18 and over can be classified as lifetime probable pathological gamblers.

Gambling and Problem Gambling In Puerto Rico

Table 7 shows that lifetime problem and probable pathological gamblers in Puerto Rico are significantly more likely than other respondents in the sample to be male, under the age of 30 and divorced or separated. Lifetime problem and probable pathological gamblers in Puerto Rico are significantly more likely than other respondents in the sample to be employed and to have annual household incomes over \$50,000.

Table 7: Comparing Lifetime Problem Gamblers with Non-Problem Respondents

		Non-Problem Respondents %	Problem & Probable Pathological Respondents %	
		(N=1,299)	(N=207)	
Gender	Male	46.6	62.8	**
	Female	53.4	37.2	
Age	18 - 20	5.2	3.9	*
	21 - 29	16.5	21.3	
	30 - 54	53.8	58.0	
	55 and over	24.5	16.9	
Ethnicity	Puerto Rican	96.3	89.4	**
	Continental US	2.5	4.5	
	Other	1.2	6.0	
Marital Status	Married	65.4	60.4	**
	Widowed	4.7	1.9	
	Divorced/Separated	10.7	21.3	
	Never Married	19.2	16.4	
Education	Less than HS	24.8	20.3	
	HS and Over	75.2	79.7	
Employment	Employed	52.3	72.9	**
	Unemployed	5.4	6.3	
	Other	42.3	20.8	
Income	Less than \$15,000	43.3	44.9	**
	\$15,000 to \$25,000	31.0	28.7	
	\$25,000 to \$50,000	23.4	14.0	
	\$50,000 or More	2.4	12.4	
Gamble Once/Week (1+ types)		57.4	87.0	**
Spend \$100+ in Typical Month		19.3	72.0	**
Mean Lifetime Gambling Activities		3.2	5.1	**

• Significant ($p < .05$)

** Highly significant ($p < .01$)

In terms of their gambling involvement, lifetime problem and probable pathological gamblers in Puerto Rico are significantly more likely than other respondents to gamble once a week or more on one or more activities and to spend \$100 or more on gambling in a typical month. In addition, the average number of types of gambling tried by lifetime problem and probable pathological gamblers is significantly higher than the average number of types of gambling tried by other respondents.

Current Prevalence

Based on current prevalence and 1990 census information, we estimate that between 80,500 (3.4%) and 127,900 (5.4%) of Puerto Rico residents aged 18 and over can be classified as current problem gamblers. In addition, we estimate that between 130,200 (5.5%) and 191,800 (8.1%) of Puerto Rico residents aged 18 and over can be classified as current probable pathological gamblers. Comparison of **Table 7** and **Table 8** shows that most of the differences between respondents who score as lifetime problem or probable pathological gamblers and the remainder of the sample in Puerto Rico hold true for current problem and probable pathological gamblers. One important difference is that current problem and probable pathological gamblers in Puerto Rico are significantly more likely to have graduated from high school than other respondents in the sample.

Table 8: Comparing Current Problem Gamblers with Non-Problem Respondents

		Non-Problem Respondents %	Problem & Probable Pathological Respondents %	
		(N=1,137)	(N=169)	
Gender	Male	47.0	63.3	**
	Female	53.0	36.7	
Age	18 - 20	5.2	4.1	**
	21 - 29	16.2	24.9	
	30 - 54	53.8	58.6	
	55 and over	24.8	12.4	
Ethnicity	Puerto Rican	96.3	88.0	**
	Continental US	2.5	4.8	
	Other	1.1	7.2	
Marital Status	Married	66.4	52.1	**
	Widowed	4.5	2.4	
	Divorced/Separated	10.4	25.4	
	Never Married	18.7	20.1	
Education	Less than HS	25.3	16.0	**
	HS and Over	74.7	84.0	
Employment	Employed	52.9	72.8	**
	Unemployed	5.5	5.9	
	Other	41.7	21.3	
Income	Less than \$15,000	43.0	47.2	**
	\$15,000 to \$25,000	30.5	31.9	
	\$25,000 to \$50,000	23.9	7.6	
	\$50,000 or More	2.6	13.2	
	Gamble Once/Week (1+ types)	58.0	88.2	**
	Spend \$100+ in Typical Month	20.3	76.3	**
	Mean Lifetime Gambling Activities	3.2	5.2	**

- Significant (p<=.05)
- ** Highly significant (p<=.01)

As with lifetime problem gamblers, current problem and probable pathological gamblers in Puerto Rico are significantly more likely than other respondents to gamble once a week or more on one or more activities and to spend \$100 or more on gambling in a typical month. In addition, the average number of types of gambling tried by current problem and probable pathological gamblers is significantly higher than the average number of types of gambling tried by other respondents.

Natural Recovery

Gambling surveys conducted since 1990 have collected information on current as well as lifetime prevalence rates of problem and probable pathological gambling. The difference between lifetime and current prevalence rates represents individuals who have experienced a gambling problem at some time in their lives but do not score as having a gambling problem currently. Since there are few available treatment services for problem and pathological gamblers in most jurisdictions, these individuals can be regarded as problem and pathological gamblers in *natural recovery*.

As in other jurisdictions, a proportion of the Puerto Rico respondents who score as lifetime problem or probable pathological gamblers do not score as having a current problem or pathology. In Puerto Rico, only 18% of lifetime problem and probable pathological gamblers do not score as having a current problem or pathology. Another explanation of this number is that four out of every five individuals who have ever experienced gambling problems in Puerto Rico are currently experiencing such difficulties.

Comparing Problem Gambling Prevalence Across Jurisdictions

The jurisdictions where 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. **Figure 2** shows the prevalence rate of lifetime problem and probable pathological gambling in Puerto Rico compared to all of the United States jurisdictions as well as New Zealand where surveys based on the South Oaks Gambling Screen have been completed. In states where replication surveys have been completed (Connecticut, Iowa, New York, South Dakota and Texas), the most recent prevalence rates are shown. **Figure 2** clearly shows that the lifetime prevalence rate of problem and probable pathological gambling in Puerto Rico is far higher than in any other jurisdiction.

Figure 2: Lifetime Prevalence Rates in the United States, New Zealand and Puerto Rico

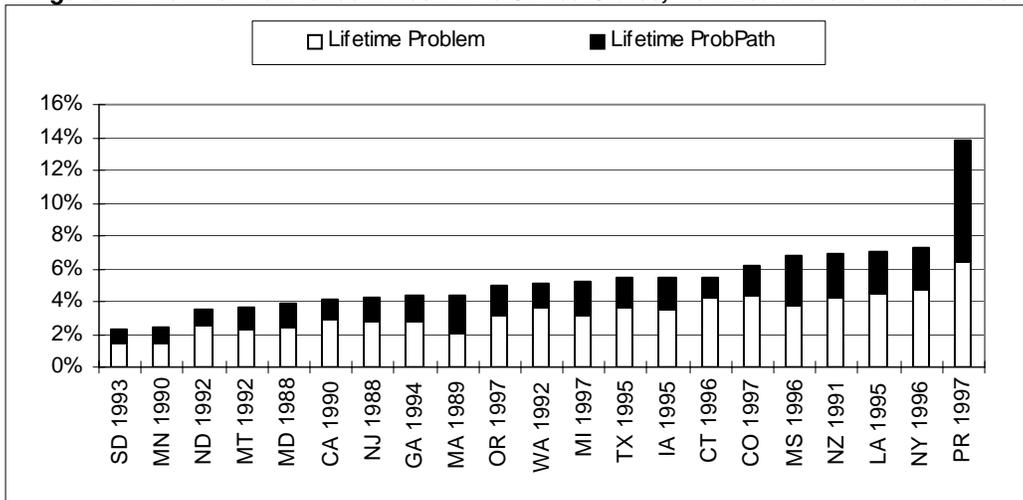
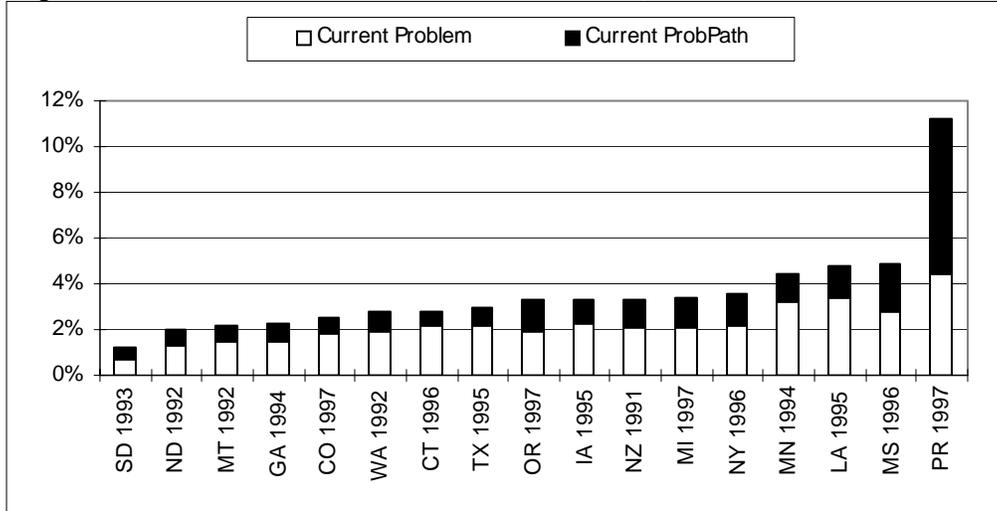


Figure 3 shows the prevalence rate of current problem and probable pathological gambling in Puerto Rico compared to all of the other jurisdictions where surveys based on the South Oaks Gambling Screen have been completed. Again, the current prevalence rate in Puerto Rico is far higher than current prevalence rates in other jurisdictions.

Figure 3: Current Prevalence Rates in the United States, New Zealand and Puerto Rico⁷



The lifetime and current prevalence rates in Puerto Rico are far higher than prevalence rates in any other United States jurisdiction. These rates are also far higher than prevalence rates of problem and pathological gambling in the Canadian provinces, Australia, New Zealand and Europe (Abbott & Volberg, 1996; Becoña, 1996; Dickerson, Baron, Hong & Cottrell, 1996; Ladouceur, 1996).

Identifying Prevalence Rates Similar to Puerto Rico

Prevalence rates similar to those identified in Puerto Rico have only been found among two specific ethnic groups. These include the Maori in New Zealand and Native Americans in North Dakota (Abbott & Volberg, 1996; Volberg, 1993b). Substantial numbers of these two ethnic groups were surveyed as part of larger studies of gambling and problem gambling in New Zealand in 1991 and North Dakota in 1992. The national survey in New Zealand included a random sample of 3,933 respondents as well as an additional 120 individuals with Maori or Pacific Island ancestry. The survey in North Dakota included a random sample of 1,517 respondents and an additional sample of 400 Native Americans (primarily Sioux and Chippewa) from the four counties in the state with the highest proportion of Native American residents.

All of the New Zealand respondents and the majority of the North Dakota respondents were interviewed by telephone although a small group of the Native American respondents in North Dakota (N=72) were interviewed in person by Native American interviewers. Like the questionnaire used in Puerto Rico, the questionnaire administered to all of the respondents in New Zealand and North Dakota was composed of three major sections, including questions about involvement in different types of gambling, the lifetime and current South Oaks Gambling Screen and demographic items.

⁷ Only 17 jurisdictions appear in Figure 3, compared to 21 in Figure 2. This is because current prevalence data has only been collected since 1991 while lifetime prevalence data has been collected since 1986.

Gambling and Problem Gambling In Puerto Rico

Despite great differences among indigenous peoples throughout the world, there are similarities in the conditions under which many of these groups live. Poverty, unemployment and dependence on welfare are widespread. Many such groups have been subject to a history of colonization and accompanying policies of economic exploitation and many remain relatively disadvantaged in socio-economic terms. Like other indigenous groups, Maori and Native Americans have relatively low levels of formal education and household income. These groups also have high unemployment rates and high levels of morbidity and mortality on a wide range of indices including particularly high rates of alcohol and substance misuse.

In a subsequent analysis of the data from New Zealand and North Dakota, Caucasian respondents from New Zealand were compared with Maori respondents and Caucasian respondents from North Dakota were compared with Native American respondents (Volberg & Abbott, 1997). Compared to Caucasians in each jurisdiction, the Maori in New Zealand and the Native Americans in North Dakota were significantly more likely to gamble weekly and to acknowledge spending significantly higher amounts on gambling in a typical month. Compared to Caucasians in each jurisdiction, the Maori in New Zealand and the Native Americans in North Dakota had significantly higher lifetime and current prevalence rates of problem and probable pathological gambling.

Table 9 shows the lifetime and current prevalence rates of problem and pathological gambling for Puerto Rico as well as for Native Americans from North Dakota, Maori from New Zealand and Caucasians from these two jurisdictions. Group sizes for Maori in New Zealand and Native Americans in North Dakota reflect the inclusion of some minority respondents in the random samples of the general population in each jurisdiction. The table shows that the lifetime and current prevalence rates of problem and pathological gambling in Puerto Rico are similar to the prevalence rates among Native Americans in North Dakota and the Maori in New Zealand and far higher than the prevalence rates among Caucasians in these two countries.

Table 9: Comparing Prevalence Rates for New Zealand, North Dakota and Puerto Rico

Prevalence Rate	Puerto Rico % (N=1,506)	North Dakota Caucasians % (N=1,465)	North Dakota Native Americans % (N=434)	New Zealand Caucasians % (N=3,456)	New Zealand Maori % (N=323)
Lifetime					
Problem	6.4	2.5	7.1	3.0	8.7
Prob Pathological	7.4	0.8	7.1	1.7	5.9
Total Lifetime	13.8	3.3	14.2	4.7	14.6
Current					
Problem	4.4	1.3	5.8	1.4	4.6
Prob Pathological	6.8	0.5	6.5	0.6	2.2
Total Current	11.2	1.8	12.3	2.0	6.8

In another context, we have suggested that, in contrast to the upper and middle classes, the working and lower classes represent subcultures where gambling is a socially sanctioned activity that gives status to the participants (Volberg, Reitzes & Boles, 1997). Combined with the stresses that are part of working class and lower class life, gambling represents a challenging opportunity to beat the system, get some action, demonstrate one's skills and gain prestige among one's friends. Since gambling is so widely sanctioned and gambling participation and expenditures are so much higher among these groups, it follows that prevalence rates of problem gambling will also be far higher than in jurisdictions where these groups represent a far smaller proportion of the population. We can therefore hypothesize that the extremely high prevalence rates among Native Americans in North Dakota, the Maori in New Zealand and in Puerto Rico all emerge from the role played by gambling in these highly impoverished cultures.

Summary

In Puerto Rico, 6.4% of the respondents scored as lifetime problem gamblers and an additional 7.4% scored as lifetime probable pathological gamblers. In Puerto Rico, 4.4% of the respondents scored as current problem gamblers and another 6.8% scored as current probable pathological gamblers. Both the lifetime and current prevalence of problem and pathological gambling in Puerto Rico are higher than in any other jurisdiction where similar surveys have been completed. Lifetime and current prevalence rates in Puerto Rico are most similar to prevalence rates among two ethnic groups, including Native Americans in North Dakota and the Maori in New Zealand.

In Puerto Rico, lifetime problem and probable pathological gamblers are significantly more likely than other respondents to be male, under the age of 30 and divorced or separated. Lifetime problem and probable pathological gamblers in Puerto Rico are also significantly more likely than other respondents to be employed and to have annual household incomes over \$50,000. Most of the differences between respondents who score as lifetime problem or probable pathological gamblers and the remainder of the sample in Puerto Rico hold true for current problem and probable pathological gamblers. However, current problem and probable pathological gamblers are significantly more likely to have graduated from high school than other respondents in the sample. Four out of every five individuals who have ever experienced gambling problems in Puerto Rico are currently experiencing such difficulties.

In this section, we have examined the prevalence of problem and probable pathological gambling among respondents in the Puerto Rico survey. Here, and in the first section of the report on *Gambling in Puerto Rico*, our focus has been on the entire sample of 1,506 respondents. In the next section, we turn our attention to differences between non-problem and problem gamblers in the Puerto Rico survey. Only those respondents who have ever tried one or more types of gambling (N=1,397) are included in analyses of the differences between non-problem and problem gamblers in the following section.

COMPARING NON-PROBLEM AND PROBLEM GAMBLERS IN PUERTO RICO

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 examine individuals at risk, our focus will be on differences between individuals who gamble, with and without problems, 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. Both the lifetime and current South Oaks Gambling Screen measures are important tools but they have rather different uses (see Appendix A for a full explanation of the methodological issues related to the South Oaks Gambling Screen). For reasons related to different rates of classification errors by the lifetime and current SOGS, the lifetime measure is better than the current measure at detecting pathological gambling among those who currently experience the disorder.

Since the lifetime South Oaks Gambling Screen is the more accurate method for identifying at-risk individuals in the general population, we use information about the characteristics of respondents who score as *lifetime* problem and pathological gamblers when considering the characteristics of individuals most in need of help with their gambling-related difficulties. Further, respondents who score as lifetime problem gamblers and those who score as lifetime probable pathological gamblers are treated as a single group and are referred to as *problem gamblers* in this section. As in the previous section, this approach is based on discriminant analysis that has established a strong and significant separation between non-problem gamblers and those who score as problem and probable pathological gamblers (Volberg & Abbott, 1994).

Demographics

Table 10 on the following page shows that, as in other jurisdictions, there are significant differences between non-problem gamblers and problem gamblers in Puerto Rico. Problem gamblers are significantly more likely than non-problem gamblers to be male and between the ages of 21 and 54 while non-problem gamblers are more likely to be female and over the age of 55. Problem gamblers are significantly more likely to be divorced or separated than non-problem gamblers. Problem gamblers are significantly more likely to be employed than non-problem gamblers in Puerto Rico and to have annual household incomes over \$50,000. **Table 10** also shows that problem gamblers in Puerto Rico are significantly younger than non-problem gamblers and that they acknowledge starting to gamble at a significantly younger age.

Table 10: Demographics of Non-Problem and Problem Gamblers in Puerto Rico

		Non-Problem Gamblers % (N=1,190)	Problem Gamblers % (N=207)	
Gender	Male	46.92	62.8	**
	Female	53.1	37.2	
Age	18 - 20	5.2	3.9	*
	21 - 29	17.6	21.3	
	30 - 54	52.1	58.0	
	55 and over	25.1	16.9	
Ethnicity	Puerto Rican	96.9	89.4	**
	Continental US	1.8	4.5	
	Other	1.3	6.0	
Marital Status	Married	63.4	60.4	**
	Widowed	5.1	1.9	
	Divorced/Separated	11.1	21.3	
	Never Married	20.3	16.4	
Education	Less than HS	25.0	20.3	
	HS and Over	75.0	79.7	
Employment	Employed	52.5	72.9	**
	Unemployed	5.4	6.3	
	Other	42.1	20.8	
Income	Less than \$15,000	43.1	44.9	**
	\$15,000 to \$25,000	30.4	28.7	
	\$25,000 to \$50,000	23.9	14.0	
	\$50,000 or More	2.6	12.4	
Mean Age		42.7	40.2	*
Mean Age Started Gambling		21.2	17.9	**

- Significant (p<=.05)
- ** Highly significant (p<=.01)

While information about the demographic characteristics of problem gamblers is helpful in designing prevention and treatment services, it is also important to understand more about the gambling behavior of non-problem and problem gamblers. Information about the behavioral correlates of problem gambling can help treatment professionals effectively identify at-risk individuals and provide appropriate treatment measures. This information is also useful to lawmakers and gaming regulators in developing measures to mitigate the negative impacts of future gambling legalization.

Weekly Gambling

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 Puerto Rico include some lottery games, most casino games and

Gambling and Problem Gambling In Puerto Rico

bingo as well as wagering on horse races or cockfights. Illegal forms of continuous gambling include illegal gambling machines, games of skill, dice and card games not at casinos, wagering on sports and ‘bolita.’”

Problem gamblers in Puerto Rico are significantly more likely than non-problem gamblers to have ever tried most of the different types of gambling included in the survey. This includes wagering at casinos, card games, horse races or cockfights, gambling machines, games of skill, dice games, sports and ‘bolita.’ Non-problem and problem gamblers are just as likely to have purchased lottery tickets and to have played bingo while non-problem gamblers are significantly more likely than problem gamblers to have ever wagered on charitable games not including bingo. These same differences are true for gambling in the past year.

Table 11 shows differences in weekly involvement in different types of wagering by non-problem and problem gamblers in Puerto Rico. **Table 11** shows that problem gamblers in Puerto Rico are significantly more likely than non-problem gamblers to gamble once a week or more often on **continuous** types of gambling including horse races or cockfights, “bolita,” illegal gambling machines, at casinos, on sports, on card games not at a casino and on games of skill. **Table 11** also shows that problem gamblers are significantly more likely to gamble weekly than non-problem gamblers in Puerto Rico.

Table 11: Weekly Gambling of Non-Problem and Problem Gamblers

Games Played Weekly	Non-Problem Gamblers % (N=1,190)	Problem Gamblers % (N=207)		Ratio
Horses Races and Cockfights	8.2	49.8	**	6.1
Numbers	17.8	43.0	**	2.4
Gambling Machines	8.5	29.0	**	3.4
Casino	2.0	18.4	**	9.2
Sports	1.3	10.1	**	7.8
Card Games	0.1	8.2	**	---
Games of Skill	2.9	6.3	*	2.2
Weekly Gambling (1+ activities)	62.6	87.0	**	1.4
Favorite Type of Gambling			**	
Lotteries	65.5	39.9		
Casino	7.2	18.7		
Horse Races and Cockfights	8.1	18.2		

* Significant ($p < .05$)

** Highly significant ($p < .01$)

In addition to gambling involvement, respondents were asked about their preferred type of gambling. **Table 11** shows that while more non-problem gamblers than problem gamblers in Puerto Rico identified the lotteries as their favorite type of gambling, significantly more problem gamblers than non-problem gamblers identified wagering at a casino and wagering on horse races or cockfighting as their favorite type of gambling.

Expenditures

In addition to gambling regularly on continuous types of wagering, an important behavioral correlate of problem gambling is heavy gambling losses (Dickerson, 1993). Although gambling losses must 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 12** on the following page shows

differences in the reported past month expenditures on different types of gambling for non-problem and problem gamblers in Puerto Rico. Although expenditures on every type of gambling, except charitable games, are significantly higher for problem gamblers than for non-problem gamblers in Puerto Rico, only those types of gambling for which average expenditures by non-problem and problem gamblers exceed \$1 in a typical month are shown.

Table 12: Monthly Gambling Expenditures by Problem and Non-Problem Gamblers

Mean Expenditures	Non-Problem Gamblers \$ (N=1,190)	Problem Gamblers \$ (N=207)		Ratio
Horse Races and Cockfights	25.70	215.91	**	8.4
Casino	22.96	115.56	**	5.0
Lotteries	27.97	70.66	**	2.5
Sports	5.27	45.34	**	8.6
Numbers	9.74	26.79	**	2.8
Card Games	5.98	25.45	**	4.2
Gaming Machines	4.70	12.45	**	2.6
Total Monthly Expenditures	112.36	645.19	**	5.7

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

Table 12 shows that the greatest differences between non-problem and problem gamblers in Puerto Rico in average monthly expenditures on gambling are for gambling on horse races or cockfights and for wagering at casinos. Differences between non-problem and problem gamblers' expenditures on lottery tickets and sports are also substantial. Finally, **Table 12** shows that average total monthly expenditures on gambling are five and a half times higher for problem gamblers than for non-problem gamblers in Puerto Rico.

In our discussion of gambling expenditures in the total sample, we identified a substantial proportion of respondents (27%) who reported spending \$100 or more on gambling in a typical month (see Page 17 and the discussion of *Variations in Expenditures*). This group of respondents accounted for 90% of reported monthly expenditures on gambling in Puerto Rico. In considering risk factors associated with problem gambling, analysis shows that 72% of the problem gamblers in Puerto Rico fall into this heavy-spending group.

Prevalence by Type of Gambling

The question most often asked about the relationship between gambling and problem gambling is: What type of gambling is most likely to add to the number of problem and pathological gamblers in the general population? We have examined the relationship between weekly involvement, gambling expenditures and problem gambling among respondents in this survey to help answer this question for Puerto Rico. Our analysis shows that for lifetime problem and probable pathological gamblers in Puerto Rico, wagering on sports, at casinos and on horse races and cockfights present the greatest risk.⁸

⁸ This finding is based on analysis of the ratios between weekly involvement and expenditures by non-problem and problem gamblers which are presented in **Table 11** and **Table 12**. The method entails calculating the rank of each type of gambling for involvement and expenditure, assigning the rank as a numerical value and adding these to arrive at a cumulative score. Thus, wagering on sports events is ranked No. 2 for involvement (with a ratio of 7.8:1) and No. 1 for expenditures (with a ratio of 8.6:1). These two numbers are added to arrive at 3, which is the lowest score (hence, the highest rank) for any type of gambling.

Another approach is to examine the prevalence of gambling problems among individuals who have participated in specific types of gambling. **Figure 4** illustrates the prevalence of lifetime problem and probable pathological gambling for the total sample, for respondents who have ever gambled and for respondents who have ever participated in different types of gambling. Only those types of gambling for which lifetime participation exceeded 10% are shown.

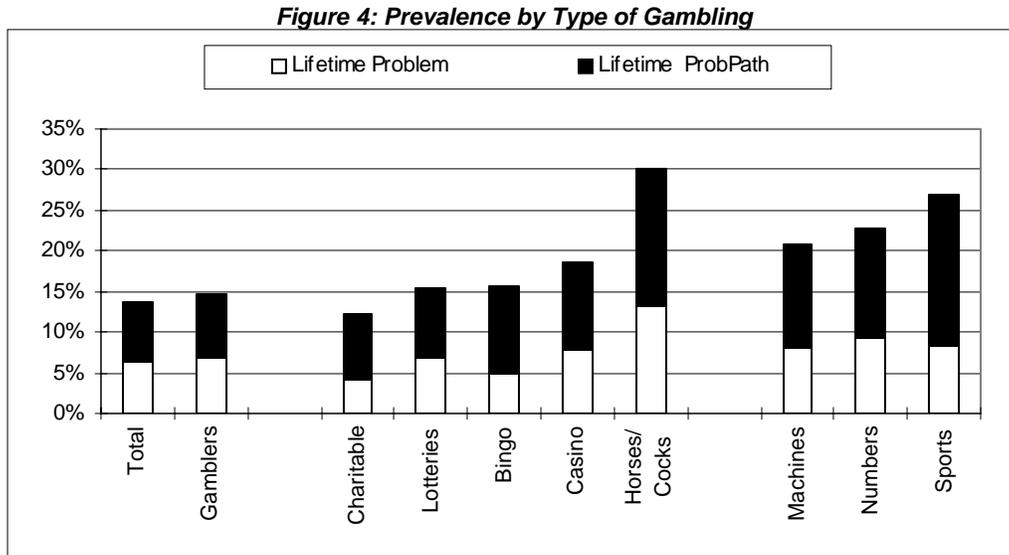


Figure 4 shows that lifetime prevalence rates are substantially higher among individuals who have participated in specific types of wagering than among the sample as a whole or among gamblers in general. In Puerto Rico, the lifetime prevalence rate is highest among individuals who have ever wagered on horse races or cockfights.

Other Significant Differences

In addition to their demographic characteristics and gambling involvement, there are other significant differences between non-problem and problem gamblers in Puerto Rico. These include differences in respondents’ perceptions of their gambling involvement, the amount of time they usually gamble and the largest amount they report losing in a single day. One important difference between non-problem and problem gamblers in other states is the age at which they start gambling (Volberg, 1994c). While the mean age at which non-problem gamblers in Puerto Rico started gambling is 21 years old, the mean age at which problem gamblers in Puerto Rico started gambling is significantly younger at 18 years old.

Table 13 on the following page shows that problem gamblers are significantly more likely than non-problem gamblers in Puerto Rico to have felt nervous about their gambling and to have felt that one or both parents had a gambling problem. **Table 13** also shows that there are significant differences between non-problem and problem gamblers in Puerto Rico 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, to have lost \$100 or more in a single day and to travel 15 or more miles in order to gamble.

Table 13: Other Significant Differences Between Non-Problem and Problem Gamblers

	Non-Problem Gamblers % (N=1,190)	Problem Gamblers % (N=207)	
Ever Felt Nervous About Your Gambling	6.8	41.1	**
Parent Ever Have Gambling Problem	4.9	9.3	*
Usually Gamble With			**
Alone	72.7	48.8	
Spouse/Partner	10.4	18.8	
Other Family	7.5	6.8	
Friends	6.4	21.3	
Other	3.0	4.3	
Usual Time Spent Gambling Per Session			**
< 1 to 2 hours	90.2	54.8	
3 to 5 hours	7.9	28.4	
6 or more hours	1.8	16.8	
Largest Amount Lost in One Day			**
< \$1 to \$9	37.9	10.2	
\$10 to \$99	53.8	61.2	
\$100 to \$999	2.1	7.8	
\$1,000 or more	6.3	20.9	
Usual Distance to Gamble			**
0 to 15 miles	89.0	80.9	
15 to 60 miles	10.3	17.1	
60 or more miles	0.6	2.0	

* Significant (p<=.05)

** Highly significant (p<=.01)

Help-Seeking

As in other jurisdictions, few respondents in Puerto Rico acknowledge desiring or seeking help for a gambling problem. Only 1.8% (N=25) of the gamblers in Puerto Rico have desired help for a gambling problem and only 0.5% (N=7) have sought such help. While the majority of the 25 respondents who desired treatment for a gambling problem were classified as problem gamblers, six of these individuals were classified as non-problem gamblers. Two of the seven respondents who had sought help for a gambling problem had done so from a family member, one had sought help from a counselor and one had sought help from a priest or minister.

In addition to questions about help-seeking, respondents were asked whether they had heard of the Problem Gambling Program (Programa PODEMOS) in Puerto Rico and, if so, how they had heard about it. Just over one-quarter of the respondents who had ever gambled (27% of the non-problem gamblers and 28% of the problem gamblers) had heard about the Problem Gambling Program. The majority of these respondents had heard about the program through a variety of sources although 22% had heard about the program through television, radio or print advertisements and 1% had heard about the program through friends. The only difference between non-problem and problem gamblers in this regard is that problem gamblers were significantly more likely than non-problem gamblers to have heard about the Problem Gambling Program through their friends.

Summary

As predicted by the research literature, regular gambling involvement and heavy gambling losses are the factors associated with gambling-related difficulties in Puerto Rico. Problem gamblers in Puerto Rico are most likely to gamble once a week or more often on horse races or cockfights, "bolita," illegal gambling machines and at casinos. Problem gamblers in Puerto Rico spend significantly more than non-problem gamblers on many types of gambling although the differences are greatest for wagering on sports, horse races or cockfights, at a casino and on card games not at a casino. Problem gamblers in Puerto Rico are significantly more likely than non-problem gamblers to have felt nervous about their gambling, to believe that one or both parents has had a gambling problem, to spend three or more hours gambling at a time and to have lost \$100 or more in a single day.

SUMMARY AND CONCLUSION

The main purpose of this study was to establish a baseline measure of the prevalence of gambling and gambling-related problems among the adult population in Puerto Rico. An additional purpose of this study was to identify the types of gambling causing the greatest difficulties for the citizens of Puerto Rico. The results of this study will be useful in documenting the impact of legal gambling on the citizens of Puerto Rico and could be helpful in formulating public policy with regard to legal gambling.

Summary

The results of this study show that significant numbers of Puerto Ricans participate in legal gambling and that these activities are widely accepted. However, the study also shows that there is a substantial number of Puerto Ricans who are currently experiencing severe difficulties related to their gambling involvement.

In 1997, more than nine out of ten respondents in Puerto Rico acknowledge participating in one or more types of gambling at some time in their lives. Lifetime gambling participation in Puerto Rico is highest for the lotteries, charitable games (not including bingo), casinos and "bolita." As in other jurisdictions, young men with relatively high income are the respondents in Puerto Rico most likely to have ever gambled.

In Puerto Rico, 6.4% of the respondents scored as lifetime problem gamblers and an additional 7.4% of the respondents scored as lifetime probable pathological gamblers. Further, 4.4% of respondents in Puerto Rico scored as current problem gamblers while 6.8% of the respondents scored as current probable pathological gamblers. Overall, the lifetime prevalence of problem and probable pathological gambling in Puerto Rico is 13.8% while the current prevalence rate in Puerto Rico is 11.2%. The lifetime and current prevalence rates in Puerto Rico are higher than in every other jurisdiction where problem gambling prevalence has been assessed. The prevalence rates of problem gambling in Puerto Rico are equaled only by prevalence rates among two specific groups: Native Americans in North Dakota and the Maori in New Zealand.

Lifetime problem gamblers in Puerto Rico are significantly more likely than other gamblers to be male, between the ages of 21 and 54 and divorced or separated. Problem gamblers in Puerto Rico are most likely to gamble weekly on horse races or cockfights, "bolita," illegal gambling machines and at a casino. Problem gamblers spend significantly more in a typical month on gambling than non-problem gamblers and are significantly more likely than non-problem gamblers to spend three or more hours gambling in a typical session and to have lost \$100 or more in a single day.

The Impact of Method on Prevalence Rates

There is some evidence that different interview methods yield different estimates of the prevalence of problem and pathological gambling. In a survey of Native Americans in North Dakota, 18% of the 400 respondents were interviewed face-to-face rather than by telephone (Volberg, 1993b). Respondents interviewed in person were significantly younger and had lower household incomes than respondents interviewed by telephone. Both lifetime and current prevalence rates of problem and probable pathological gambling were significantly higher among respondents interviewed in person.

It is possible that the exceptionally high prevalence rates identified in Puerto Rico are the result of the data collection method used in Puerto Rico. While a recent effort in Sweden found no significant differences in prevalence rates based on mailed questionnaires and telephone

interviews (Abbott, Rönnerberg & Volberg, 1997), further research is required to determine whether face-to-face interviews lead to significantly different rates of acknowledgment on questions about gambling-related difficulties than either mailed questionnaires or telephone interviews.

A more likely explanation is that problem gambling prevalence rates are substantially higher among marginal and highly impoverished groups like the Maori in New Zealand and Native Americans in the United States. Again, further research and analysis is required to determine whether prevalence rates of problem and pathological gambling are substantially higher among extremely low income groups than among respondents with higher socio-economic status.

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.

The first step usually taken by governments in response to an emerging social problem is to determine the number of individuals who may be in need of assistance as a result of a specific government policy or activity. The next step is to develop a range of services for affected individuals and their families. In the wake of widespread gambling legalization in the 1980s and 1990s, governments have moved forward in implementing measures to educate the public as well as treatment professionals and gaming operators about problem gambling.

How Many To Plan For?

The first step in developing rational policy with regard to legal gambling has now been taken in Puerto Rico by funding the prevalence study reported here. One important purpose of a prevalence survey is to identify the number of individuals in a jurisdiction who may need treatment services for gambling-related difficulties. Experience in many jurisdictions suggests that not all of the individuals in need of treatment for a physical or psychological problem will seek out such treatment. From a policy perspective, the question is: How many individuals should we plan to provide for?

Recently, researchers in Australia have successfully used an approach adopted from the alcoholism treatment field to predict the proportion of individuals in need of problem gambling treatment services who would access such services. Research suggesting that approximately 3% of individuals with severe alcohol-related difficulties actually seek treatment was replicated in predicting the number of problem gamblers who would seek treatment in two Australian states (Dickerson, 1997).

In calculating the number of problem and pathological gamblers who might seek treatment in Puerto Rico, we focus on the group of individuals who score as current probable pathological gamblers (e.g. the 193,700 individuals represented by the lower end of the confidence interval for current probable pathological gambling in Puerto Rico). Based on this approach, we estimate that Puerto Rico may wish to plan to provide problem gambling services to approximately 5,800 individuals per year.

In this regard, it is helpful to examine information from Programa PODEMOS on calls to the problem gambling helpline in Puerto Rico. A study of the first three years of operation of the helpline, carried out by Consultores en Conducta Humana, found that the helpline received 1,118 calls or contacts between 1994 and 1996. Nearly two-thirds of these contacts (64% or N=712) were classified as telemarketing. One third of the calls (32% or N=363) were callers seeking help for a gambling

problem and the remaining calls (4% or N=43) could not be classified. The majority of the calls made to Programa PODEMOS were from the San Juan metropolitan area (Vales, 1997).

The low rate of calls from problem gamblers to Programa PODEMOS probably reflects a reluctance by Puerto Ricans to acknowledge difficulties related to their gambling or to seek help for this disorder. However, the small number of callers with gambling problems also suggests that greater efforts are needed to educate the public about problem and pathological gambling as well as about the activities of Programa PODEMOS. The concentration of calls to the helpline from the San Juan metropolitan area also suggests that the services provided by Programa PODEMOS are somewhat limited geographically.

Recommendations

Given the extent of legal gambling and the prevalence of problem and probable pathological gambling in Puerto Rico, it will be important to expand the current services for problem gamblers and their families in Puerto Rico. In making decisions about implementing such services, policy-makers, gaming operators and treatment providers and others may wish to give consideration to developing the following services and activities:

- **expansion** of Programa PODEMOS to increase public education and outreach activities;
- development of additional **funding** for problem gambling services from other legal gambling operators in Puerto Rico through voluntary donations, additional taxes or fines on illegal operators;
- better **coordination** of the efforts of Programa PODEMOS with the Mental Health and Addiction Services Administration;
- funding and development of **treatment services** for problem gamblers and their families through the Mental Health and Addiction Services Administration, including innovative treatment alternatives to provide a variety of options for individuals seeking help for gambling problems;
- **training opportunities** to educate mental health, alcohol and substance abuse treatment professionals in how to screen for gambling problems and pathology as well as when and where to refer such individuals for appropriate treatment;
- funding and development of **public education and prevention programs** targeted toward at-risk groups in the population including young adults in colleges and universities as well as at the community level throughout Puerto Rico;
- development of **responsible gaming policies and programs** applicable to all types of gambling in Puerto Rico;
- **evaluation** of the effectiveness of all programs serving problem gamblers in Puerto Rico; and
- continued **research and monitoring** to assess the impacts of the introduction of new types of legal gambling on the citizens of Puerto Rico. These activities should include a prevalence survey of adolescents in Puerto Rico to assess their involvement in gambling and rates of difficulties as well as a replication of the present study in three to five years.

Gambling and Problem Gambling In Puerto Rico

This report represents the first thorough assessment of rates of gambling and problem gambling in Puerto Rico. The data from this survey provide insights that will be valuable in on-going policy and planning efforts on the Island. In the future, it will be important for everyone involved with legal gambling in Puerto Rico to continue to work together to develop ways to help the citizens of Puerto Rico who experience difficulties related to their gambling and to prevent any future increases in the prevalence of problem gambling on the Island.

REFERENCES

- Abbott, M. W. & R. A. Volberg. 1991. Gambling and Problem 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. W. & 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. W. & R. A. Volberg. 1996. "The New Zealand National Survey of Problem and Pathological Gambling." Journal of Gambling Studies, 12 (2): 143-160.
- Abbott, M. W., S. Rönnerberg & R. A. Volberg. 1997. Some Major Conclusions from the Pilot Study of Gambling and Problem Gambling in Sweden. Report to the Sweden Ministry of Health and Social Affairs.
- American Psychiatric Association. 1980. Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. 1994. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association.
- Angus Reid Group. 1996. Problem Gambling Survey 1996. Report to the British Columbia Lottery Corporation.
- Angus Reid Group & Gemini Research. 1994. Social Gaming and Problem Gambling in British Columbia. Report to the British Columbia Lottery Corporation.
- Baron, E., M. G. Dickerson & A. Blaszczynski. 1995. "The Scale of Gambling Choices': Preliminary Development of an Instrument to Measure Impaired Control of Gambling Behaviour." NAGS '95: Proceedings of the Sixth National Conference on Gambling Studies. (Pp. 153-167).
- Baseline Market Research. 1992. Prevalence Survey of Problem Gambling in New Brunswick. Report to the New Brunswick Department of Finance.
- Baseline Market Research. 1996a. Prevalence Study Problem Gambling: Wave 2. Report to the New Brunswick Department of Finance.
- Baseline Market Research. 1996b. 1996 Prevalence Study on Problem Gambling in Nova Scotia. Report to the Nova Scotia Department of Health.
- Becoña, E.. 1996. "Prevalence Surveys of Problem and Pathological Gambling in Europe: The Cases of Germany, Holland and Spain," Journal of Gambling Studies 12 (2): 179-192.
- Castro Vélez, A. 1990. El Mundo (June 17, 1990).
- 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.
- Consultec, Inc. 1997. El Nuevo Día (May 13, 1997).

Gambling and Problem Gambling In Puerto Rico

- Criterion Research Corporation. 1993. Problem Gambling Study. Report to the Manitoba Lotteries Foundation.
- Criterion Research Corporation. 1995. Problem Gambling Study: Final Report. Report to the Manitoba Lotteries Foundation.
- Culleton, R. P. 1985. A Survey of Pathological Gamblers in the State of Ohio. Report prepared for the Ohio Lottery Commission.
- Culleton, R. P. 1989. "The Prevalence Rates of Pathological Gambling: A Look at Methods," Journal of Gambling Behavior 5: 22-41.
- Díaz Saldaña, Manuel, Secretary. 1994. Report by the Secretary of the Treasury of Puerto Rico to the House of Representatives in Relation to Project 1116. San Juan, P.R. (March 19, 1994).
- 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.
- Dickerson, M. G. 1997. The Australian Experience of the Development of Strategies to Address Gambling Related Problems in the Community: Implications for Other Jurisdictions. Paper presented at the 10th International Conference on Gambling and Risk Taking. Montreal, CANADA.
- Dickerson, M. G., E. Baron, S-M. Hong & D. Cottrell. 1996. "Estimating the Extent and Degree of Gambling-Related Problems in the Australian Population: A National Survey," Journal of Gambling Studies 12 (2): 161-178.
- Emerson, M. O. & J. C. Laudergeran. 1996. "Gambling and Problem Gambling Among Adult Minnesotans: Changes 1990 to 1994," Journal of Gambling Studies 12 (3): 291-304.
- Fisher, S. E. 1996. Gambling and Problem Gambling Among Casino Patrons. Report to the British Casino Industry Consortium.
- Gilbert, R. V. 1958. Report on Gambling in Puerto Rico. Technical Report to the Puerto Rico Planning Board.
- Gullickson, A. R. & D. J. Hartmann. 1997. Compulsive Gambling in Michigan: Final Report. Report to the Michigan Bureau of State Lottery from the Western Michigan University Evaluation Center and the Leonard C. Kercher Center for Social Research.
- Hispanía Research Corporation. 1989. Un Análisis de los Juegos de Azar en Puerto Rico (Aggregated Analysis of Gambling in Puerto Rico).
- Insight Canada Research. 1993. Prevalence of Problem and Pathological Gambling in Ontario using the South Oaks Gambling Screen. Toronto: Canadian Foundation for Compulsive Gambling.
- Jacques, C., R. Ladouceur, F. Ferland & I. Giroux. 1997. Prevalence of Problem Gambling in Quebec Seven Years After the First Prevalence Study. Paper presented at the 10th International Conference on Gambling and Risk Taking. Montreal, CANADA.
- Kallick-Kaufmann, M. 1979. "The Micro and Macro Dimensions of Gambling in the United States," Journal of Social Issues 35: 7-26.

- 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.
- Ladouceur, R. 1993. "Prevalence Estimates of Pathological Gamblers in Quebec, Canada." In Gambling Behavior and Problem Gambling, W. R. Eadington & J. A. Cornelius (eds). (Pp. 379-384). Reno: University of Nevada, Reno.
- Ladouceur, R. 1996. "Prevalence of Pathological Gamblers in Canada and Related Issues," Journal of Gambling Studies 12 (2): 129-142.
- 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. 1994. "Epidemiological Surveys of Pathological Gambling: Critique and Suggestions for Modification," Journal of Gambling Studies 10 (4): 385-398.
- 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. Blume & R. M. Zoppa. 1986. "Alcoholism, Drug Abuse, and Gambling," Alcoholism: Clinical and Experimental Research 10: 33-38.
- Lesieur, H. R. & R. Klein. 1985. Prisoners, Gambling and Crime. Paper presented at the Meetings of the Academy of Criminal Justice Scientists.
- Lesieur, H. R. & R. J. Rosenthal. 1991. "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 (1): 5-40.
- Litwin, M. S. 1995. How to Measure Survey Reliability and Validity. Thousand Oaks: Sage Publications.
- National Council on Problem Gambling. 1997. Problem and Pathological Gambling in America: The National Picture. Report prepared by the Research and Public Policy Committees of the National Council on Problem Gambling.
- New Mexico Department of Health. 1996. New Mexico Survey of Gambling Behavior 1996. Report to the New Mexico Department of Health.
- North American Gaming Report. 1997. International Gaming & Wagering Business. Supplement. (Volume 18, No. 7).
- Omnifacts Research. 1993. An Examination of the Prevalence of Gambling in Nova Scotia. Report to the Nova Scotia Department of Health, Drug Dependency Services.

Gambling and Problem Gambling In Puerto Rico

- Puerto Rico Planning Board. 1974. Study of Gambling in Puerto Rico. Area of Planning, Economy and Social Programs. San Juan, Puerto Rico.
- Robson, E. 1995. Intervention Proposal Regarding Gambling Decisions. Edmonton: Alberta Alcohol and Drug Abuse Commission.
- Rosecrance, J. 1988. Gambling Without Guilt: The Legitimation of an American Pastime. Belmont, CA: Wadsworth.
- Stinchfield, R. 1997. Reliability, Validity and Classification Accuracy of the South Oaks Gambling Screen (SOGS). Paper presented at the 10th International Conference on Gambling and Risk Taking. Montreal, CANADA.
- Thompson, W. N., R. Gazel & D. Rickman. 1996. The Social Costs of Gambling in Wisconsin. Report to the Wisconsin Policy Research Institute. Volume 9, No. 6.
- Vales, P. A. 1997. Three-Year Analysis of the Performance of the Helpline of Programa PODEMOS (1994-1996). Report to the Puerto Rico Department of the Treasury.
- Valle, N. El Reportero (15-article series, March 2, 1987 to March 11, 1987).
- Volberg, R. A. 1992. Gambling Involvement and Problem Gambling in Montana. Report to the Montana Department of Corrections and Human Services.
- Volberg, R. A. 1993a. Gambling and Problem Gambling in Washington State. Report to the Washington State Lottery.
- Volberg, R. A. 1993b. Gambling and Problem Gambling Among Native Americans in North Dakota. Report to the North Dakota Department of Human Services.
- Volberg, R. A. 1994a. "Assessing Problem and Pathological Gambling in the General Population: A Methodological Review." In Gambling in Canada: The Bottom Line, C. Campbell (ed). Vancouver: Simon Fraser University Press.
- 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. 1994c. "The Prevalence and Demographics of Pathological Gamblers: Implications for Public Health," American Journal of Public Health 84 (2): 237-241.
- Volberg, R. A. 1995a. Gambling and Problem Gambling in Georgia. Report to the Georgia Department of Human Services.
- Volberg, R. A. 1995b. Gambling and Problem Gambling in Iowa: A Replication Survey. Report to the Iowa Department of Human Services.
- Volberg, R. A. 1995c. Wagering and Problem Wagering in Louisiana. Report to the Louisiana Economic Development and Gaming Corporation.
- Volberg, R. A. 1996. Gambling and Problem Gambling in New York: A 10-Year Replication Survey, 1986 to 1996. Report to the New York Council on Problem Gambling.
- Volberg, R. A. 1997a. Gambling and Problem Gambling in Mississippi. Report to the Mississippi Council on Compulsive Gambling. Social Research Report Series 97-1. Social Science Research Center, Mississippi State University.

- Volberg, R. A. 1997b. Gambling and Problem Gambling in Colorado. Report to the Colorado Department of Revenue.
- Volberg, R. A. & M. W. Abbott. 1994. "Lifetime Prevalence Estimates of Pathological Gambling in New Zealand," International Journal of Epidemiology 23 (5): 976-983.
- Volberg, R. A. & M. W. Abbott. 1997. "Gambling and Problem Gambling Among Indigenous Peoples," Substance Use and Misuse 32 (11): 1525-1538.
- Volberg, R. A. & S. M. Banks. 1990. "A Review of Two Measures of Pathological Gambling in the United States," Journal of Gambling Behavior 6 (2): 153-163.
- Volberg, R. A. and M. G. Dickerson (eds.). 1996. Journal of Gambling Studies, Special Issue on International Prevalence Studies and Related Treatment Developments. Vol. 12, No. 2.
- Volberg, R. A & W. Glackman. 1995. Bingo Play in Vancouver: Report on a Telephone Survey of Active Bingo Players in Vancouver. Report to the Mount Pleasant Starship Community Charitable Association.
- 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. "Prevalence Estimates of Pathological Gambling in New Jersey and Maryland," American Journal of Psychiatry 146: 1618-1619.
- 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.
- Volberg, R. A., D. C. Reitzes & J. Boles. 1997. "Exploring the Links Between Gambling, Problem Gambling and Self-Esteem." Deviant Behavior 18: 321-342.
- Walker, M. B. 1992. The Psychology of Gambling. Oxford: Pergamon Press.
- Walker, M. B. & M. G. Dickerson. 1996. "The Prevalence of Problem and Pathological Gambling: A Critical Analysis," Journal of Gambling Studies 12 (2): 233-249.
- Wallisch, L. 1993. The 1992 Texas Survey of Adult Gambling Behavior. Report to the Texas Commission on Alcohol and Drug Abuse.
- Wallisch, L. 1996. Gambling in Texas: 1995 Surveys of Adult and Adolescent Gambling Behavior. Report to the Texas Commission on Alcohol and Drug Abuse.
- WEFA Group. 1997. A Study Concerning the Effects of Legalized Gambling on the Citizens of the State of Connecticut. Report to the State of Connecticut Department of Revenue Services, Division of Special Revenues.
- Whittemore, H. & M. Baumgartner. 1996. Gaming Regulatory Agencies 1996. Reno: American Gaming Summit.

Wynne, H. J., G. J. Smith & R. A. Volberg. 1994. Gambling and Problem Gambling in Alberta.
Report to the Alberta Lotteries and Gaming Commission.

LEGAL REFERENCES

Cockfighting Law

Law Num. 1, August 12th, 1933

New Puerto Rico Cockfight Law -- Law Num 95 of June 30th, 1954 amended by Law 37 of June 8th, 1956

Horse Racing Law

Law Num. 28 of March 10th, 1910

Law Num. 149 of July 22nd, 1956

Casinos

Law Num. 221 of May 15th, 1948

Law Num. 90 of June 23rd, 1956

Law Num. 185 of September 3rd, 1996 as amended

Lotteries

Law Num. 37 of May 14th, 1934

Law Num. 465 of May 15th, 1947

Law Num. 124 of July 1st, 1968

Law Num. 10 of May 24th, 1989 as amended

Charitable Games

Law Num. 242 of May 18th, 1950

Law Num. 25 of April 23rd, 1927, amended in 1936 and 1938

Illegal Gambling

Chapter 5, LPRA, Title 15

Chapter 13-17, LPRA, Title 15

Law Num. 149 of July 22nd, 1960