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Prevalence Studies of Problem Gambling in the United States

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The rapid expansion of legalized gambling in the United States has produced tremendous demands for information about the number and characteristics of problem gamblers in the general population. This paper examines the results of prevalence studies of problem and pathological gambling that have been carried out in the United States. The discussion is largely chronological, with a focus on comparative findings from the 15 United States jurisdictions where prevalence studies have been completed since 1980. The results of these studies verify findings from clinical and experimental studies as well as suggesting important avenues for future research. The paper concludes with a consideration of the role played by survey research in advancing the field of gambling research.

In the 1970s and 1980s, in response to cutbacks in federal spending and declining tax revenues, state legislatures throughout the United States began to legalize many types of gambling. Initially, states legalized lotteries with weekly and then daily drawings. As these games

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matured, instant games and then video games such as keno and poker were introduced. By 1993, 37 states and the District of Columbia operated lotteries; eight states had lottery keno games while video poker machines were legal in four states.

Casino gambling, once confined to Nevada and Atlantic City, has spread rapidly across the United States in recent years. This expansion has occurred in response to economic recession, rising state and local revenue needs and the Indian Gaming Regulatory Act of 1988. By 1993, there were 153 high-stakes bingo halls and/or casinos operated by Native American tribes located in 27 states (Connor, 1993). Other forms of casino-style gambling such as riverboats and low-stakes casino gambling, have also proliferated. By 1993, riverboat gambling was legal in six states while land-based casinos had been legalized in historic mining towns in Colorado and South Dakota as well as in New Orleans. While the money wagered legally in 1974 was estimated to be \$17 billion, the money wagered legally in 1992 had reached \$330 billion (Christiansen, 1993; Kallick, Suits, Dielman & Hybels, 1979).

In spite of debates about the essential nature of problem and pathological gambling and the most appropriate ways for governments to respond to this issue, the rapid expansion of legalized gambling in the United States has produced tremendous demands for information about the number and characteristics of problem and pathological gamblers in the general population. This paper examines the results of prevalence studies of problem and pathological gambling that have been carried out in the United States since 1980.

METHODS TO ASSESS PROBLEM GAMBLING IN THE GENERAL POPULATION

Until the 1980s, there were few studies of gambling and problem gambling in the general population. The only national prevalence survey of gambling and gambling-related problems in the United States was carried out in 1974 by the Institute for Social Research (Kallick et al., 1979). While the authors concluded that there were 1.1 million "probable compulsive gamblers" in the United States at that time, the methods they developed to identify problematic gamblers have been criticized (Nadler, 1985).

In a review of the instruments available to assess problem and pathological gambling in 1985, the author and her colleagues were able to locate only two screens for identifying problem and pathological gamblers (Volberg & Banks, 1990). The Cumulative Clinical Signs Method is based on the questionnaire developed for the 1974 survey and has never been experimentally validated (Culleton, 1989). The South Oaks Gambling Screen, based on the psychiatric criteria for pathological gambling published in the *DSM-III* (American Psychiatric Association, 1980), has been tested for reliability and validity with several populations, including hospital workers, university students, prisoners and inpatients in alcohol and substance abuse treatment programs as well as in the general population in New Zealand (Abbott & Volberg, 1992; Lesieur & Blume, 1987).

Although no other national survey of gambling and problem gambling has been undertaken in the United States, there have been 15 state-wide surveys of problem and pathological gambling completed since 1980. The two earliest studies were based on the Cumulative Clinical Signs Method while all of the others have been based on the original or modified versions of the South Oaks Gambling Screen. In all of these surveys, respondents were contacted and interviewed by telephone. The number of interviews completed in each jurisdiction was determined by balancing available resources, confidence intervals and the size of the population.

Different approaches have been taken to obtain representative samples of the population in different states. In most cases, a sample of eligible telephone numbers has been purchased from a national company that specializes in developing samples for political and market research polling. In some cases, the organization responsible for data collection in a particular state has used its own telephone interviewing system to generate eligible telephone numbers.

In most of these surveys, respondents were contacted and recruited during evening hours on weekdays and during the daytime on weekends. The "next birthday" method was used to recruit respondents randomly within the household. Only one respondent per household was interviewed and a minimum of five and maximum of ten callbacks were made to complete an interview with an eligible respondent. Response rates for surveys based on the South Oaks Gambling Screen range from 78% in South Dakota to 65% in New Jersey.

RESULTS

The discussion that follows is largely chronological. The first section focuses on the two earliest prevalence surveys based on the Cumulative Clinical Signs Method. The second section focuses on six prevalence surveys directed by the author and her colleagues under funding from New York State and the National Institute of Mental Health. The third section focuses on two prevalence surveys based on modified South Oaks Gambling Screen approaches while the fourth section highlights the results of several more baseline prevalence surveys directed or guided by the author.

Ohio and the Delaware Valley

Prevalence studies based on the Cumulative Clinical Signs Method were carried out in the Delaware Valley in 1984 (Sommers, 1988) and in Ohio in 1985 (Culleton, 1985). The Delaware Valley is made up of nine counties in Pennsylvania and New Jersey that surround the metropolitan area of Philadelphia. To assess gambling involvement in these surveys, respondents were asked whether they participated in games of chance or bet on outcomes of games or events frequently, sometimes or never. This self-identification approach caused substantial under-reporting of gambling involvement. Only 31% of the Delaware Valley respondents and 24% of the Ohio respondents described themselves as gamblers in contrast to 66% of the respondents classified as gamblers in the national survey ten years earlier.

The Cumulative Clinical Signs Method is composed of 28 items clustered into five "tests." A positive score on any item in a given test constitutes a positive score on that test. The sum of the test scores yields a respondent's total score which can range from 0 to 5. In estimating prevalence, respondents in these surveys were classified as "potential pathological gamblers" if they scored on two of the tests and as "probable pathological gamblers" if they scored on three or more of the tests. Table 1 compares gambling participation and potential and probable pathological gambling rates among the samples from Ohio and the Delaware Valley.

Pathological gamblers in Ohio and the Delaware Valley were significantly more likely than other respondents to be male, under the age of 35 and unmarried. These individuals were significantly more likely

Table 1
Prevalence Rates Based on the Cumulative Clinical Signs
Method (CCSM)

<i>Year</i>	<i>State</i>	<i>Sample</i> <i>Size</i>	<i>Gambling</i> <i>Participation</i>	<i>Potential</i>	<i>Probable</i>
				<i>Pathological</i> <i>Gambling</i>	<i>Pathological</i> <i>Gambling</i>
1984	Delaware Valley	534	31%	4.1%	3.4%
1985	Ohio	801	24%	3.4%	2.5%

Source: Culleton, 1985; Sommers, 1988

than other respondents to have graduated from high school but less likely to have household incomes under \$20,000 per year (Culleton, 1985; Sommers, 1988).

Early South Oaks Gambling Screen Studies

In 1986, as part of a comprehensive evaluation of treatment programs for problem gamblers in New York State, the author directed the first prevalence survey of problem and pathological gambling in the general population based on the South Oaks Gambling Screen (Volberg & Steadman, 1988). The New York State survey served as the pilot study for a National Institute of Mental Health proposal, funded in 1988, to carry out prevalence surveys in California, Iowa, Maryland, Massachusetts and New Jersey (Volberg 1993a; Volberg, 1994).

The South Oaks Gambling Screen is composed of 20 equally scored questions. Half of these questions focus on personal or interpersonal behaviors and half of the questions focus on borrowing to gamble or to pay gambling-related debts (Lesieur & Blume, 1987). In accordance with established criteria, respondents who scored 3 or 4 points on the South Oaks Gambling Screen were classified as "problem gamblers" while respondents who scored 5 or more points were classified as "probable pathological gamblers." Table 2 compares gambling participation as well as problem and probable pathological gambling rates among the samples from New York and these other states.

As in the two surveys based on the Cumulative Clinical Signs Method, the results of the New York and other early SOGS-based

Table 2
Lifetime Prevalence Rates Based on the South Oaks Gambling Screen (SOGS)

Year	State	Sample Size	Gambling Participation	Problem Gambling	Probable	
					Pathological Gambling	Total
1986	New York	1,000	85%	2.8%	1.4%	4.2%
1988	New Jersey	1,000	92%	2.8%	1.4%	4.2%
1988	Maryland	750	89%	2.4%	1.5%	3.9%
1989	Massachusetts	750	90%	2.1%	2.3%	4.4%
1989	Iowa	750	84%	1.6%	0.1%	1.7%
1990	California	1,250	89%	2.9%	1.2%	4.1%

Source: Volberg, 1994; Volberg & Steadman, 1988

surveys showed that lifetime gambling participation as well as the prevalence of problem and pathological gambling were significantly higher on the East and West Coasts than in the Midwest. Since all of these surveys were baseline measures, they constitute a necessary but not sufficient basis to establish a causal relationship between gambling availability and increases in the prevalence of problem and pathological gambling.

For the first time, these surveys provided information about the demographic characteristics and gambling involvement of non-problem gamblers compared to those with moderate to severe gambling-related problems in the general population. Table 3 compares the demographic characteristics and gambling involvement of non-problem gamblers with problem and probable pathological gamblers in California, Iowa, Maryland, Massachusetts, New Jersey and New York.

Table 3 shows that problem and probable pathological gamblers are significantly more likely than non-problem gamblers in the general population to be male, under the age of 30 and non-Caucasian. Problem and probable pathological gamblers are significantly more likely than non-problem gamblers to have annual household incomes under \$25,000 and less likely to have graduated from high school. Finally, problem and probable pathological gamblers are significantly more likely to have wagered very often in the past year than non-problem gamblers.

Table 3
Comparing Problem and Non-Problem Gamblers from States
Surveyed Between 1986 and 1990

<i>Demographics</i>	<i>Non-Problem Gamblers (N=4,624)</i>	<i>Problem & Pathological Gamblers (N=210)</i>
Male	44%	69%*
Under 30	25%	37%*
Non-Caucasian	19%	37%*
Not Married	46%	58%*
Less than HS	10%	20%*
HH Income Under \$25,000	28%	37%*
Wagered very often in past year	5%	34%*

*Statistically significant ($p \leq .01$) as tested by chi-square analysis.

Source: Data from surveys in California, Iowa, Maryland, Massachusetts, New Jersey and New York.

South Oaks Gambling Screen Studies Since 1990

There have been seven baseline surveys of gambling and problem gambling in the general population in the United States completed since 1990. These include surveys in Connecticut, Minnesota, Montana, North Dakota, South Dakota, Texas and Washington State (Christiansen/Cummings Associates, 1992; Laudergeran, Schaefer, Eckhoff & Pirie, 1990; Volberg, 1992; Volberg, 1993b; Volberg & Silver, 1992; Volberg & Stuefen, 1991; Wallisch, 1993). The author has directed or consulted on all of these studies except Minnesota. The surveys done in Minnesota and Connecticut will be addressed first since differences in the questionnaire or sampling design in these studies appear to have contributed to somewhat anomalous results.

Minnesota. A survey of problem and pathological gambling was completed in Minnesota just prior to the establishment of a state lottery (Laudergeran et al., 1990). The sample of 1,200 Minnesota adults was not representative of the general population of Minnesota but was drawn from three geographic regions in the state. The questionnaire included a modified version of the South Oaks Gambling Screen which framed all of the items in terms of the past year.

The alterations made to the South Oaks Gambling Screen by the Minnesota researchers created considerable uncertainty in interpreting the results of the prevalence survey in that state. From a policy perspective, there was an important loss of comparability with other states that were conducting prevalence surveys of problem and pathological gambling during this time. Laudergeran (1992) has since described efforts to adjust the prevalence estimates from Minnesota on the basis of a comparison of scores on the original and modified screen among individuals entering a gambling treatment program.

Connecticut. The Connecticut Division of Special Revenue, which oversees all legalized gambling in the state, is mandated to conduct a study of the impact of gambling on the state every five years. In 1986, four questions from the *Diagnostic Interview Schedule* were used to identify respondents with gambling-related problems. In 1991, the mandated survey included the lifetime South Oaks Gambling Screen items in order to obtain prevalence data comparable to other states (Christiansen/Cummings Associates, 1992). While the South Oaks Gambling Screen items were not changed, these questions were administered at the end of a lengthy interview that probed respondents' attitudes about existing gambling opportunities, proposed new gambling initiatives and several alternative scenarios for legalizing casinos in Connecticut.

Prevalence estimates in Connecticut were substantially higher than in contiguous states where prevalence surveys had recently been completed. There is no way to determine whether the substantial differences in the questionnaire in Connecticut contributed to higher scores on the South Oaks Gambling Screen items. Despite higher rates of gambling participation as well as problem and pathological gambling, the demographics of problem and probable pathological gamblers in Connecticut were similar to the demographics of problem and probable pathological gamblers in other East Coast states.

Other Prevalence Studies

In 1991, several changes were made to the questionnaire used in New York and the other early SOGS-based surveys to address criticisms that had been raised of the South Oaks Gambling Screen (Cul-

leton, 1989; Dickerson, 1993; Walker, 1992). The preliminary section of the questionnaire was expanded in order to collect better information about patterns of gambling in the general population. Another change was to expand the South Oaks Gambling Screen to assess both lifetime and current prevalence of problem and pathological gambling. Current prevalence was measured by asking respondents who acknowledged a lifetime behavior whether this behavior had occurred in the past year (in South Dakota, the time frame was 6 months). Scoring for current prevalence remained the same as scoring for lifetime prevalence. The addition of current prevalence data was intended to improve the usefulness of these surveys for policy and program planning. To determine if these changes to the questionnaire had any impact on reported prevalence rates, the revised questionnaire was tested in Iowa where an earlier prevalence survey had been carried out under funding from the National Institute of Mental Health. The difference in lifetime prevalence rates for the two surveys in Iowa was 0.1% (Volberg & Stuefen, 1991).

Prevalence Rates of Problem and Pathological Gambling

In reporting results from prevalence surveys in the United States, individuals who score as problem gamblers and those who score as probable pathological gamblers are now generally treated as a single group. This approach is based on discriminant analysis that has established a strong and highly significant separation between non-problem gamblers and those who score as problem and probable pathological gamblers (Volberg & Abbott, 1994).

Table 4 shows the lifetime and current prevalence rates of problem and probable pathological gambling in the states surveyed between 1991 and 1992. As with earlier surveys, lifetime prevalence rates of problem and pathological gambling are substantially lower in the Midwestern states of Montana, North Dakota and South Dakota than in the border states of Connecticut, Washington State and Texas.

The results from Texas are particularly interesting since, apart from Minnesota, this is the only prevalence study completed prior to the operational start of legalized gambling in a single jurisdiction. Although lifetime gambling participation is far lower in Texas than in other states, lifetime and current prevalence rates of problem and probable pathological gambling are nevertheless substantial.

Table 4
Lifetime and Current Prevalence Rates Based on the South Oaks
Gambling Screen

<i>Year</i>	<i>State</i>	<i>Sample</i> <i>Size</i>	<i>Lifetime</i>		
			<i>Gambling</i> <i>Participation</i>	<i>Lifetime</i> <i>Prevalence</i>	<i>Current</i> <i>Prevalence</i>
1990	Minnesota	1,200	—	—	1.5%
1991	Connecticut	1,000	—	6.3%	—
1991	South Dakota	1,560	86%	2.8%	1.4%
1992	Montana	1,020	86%	3.6%	2.2%
1992	North Dakota	1,517	85%	3.5%	2.0%
1992	Texas	6,308	76%	4.8%	2.5%
1992	Washington State	1,502	91%	5.1%	2.8%

Source: Christiansen/Cummings Associates 1992; Laundergan et al., 1990; Volberg, 1992; Volberg, 1993b; Volberg & Silver, 1993; Volberg & Stuefen, 1991; and Wallisch, 1993

Comparing Non-Problem and Problem Gamblers

In considering results from surveys of gambling and problem gambling in the general population, it is helpful to focus specifically on respondents who have gambled. While lifetime participation rates differ significantly across jurisdictions, the characteristics of respondents who have ever gambled and those who experience gambling-related problems are similar. The discussion that follows is based on data from respondents in Montana, North Dakota, South Dakota, Texas and Washington State.

Demographics. As in earlier surveys, problem and probable pathological gamblers in these surveys are demographically distinct from non-problem gamblers in the general population. Table 5 shows that problem and probable pathological gamblers in the general population are significantly more likely than non-problem gamblers to be male, under the age of 30, non-Caucasian and unmarried. Problem and probable pathological gamblers in the general population are significantly less likely than non-problem gamblers to have completed high school. Table 5 also shows that problem and probable pathological gamblers recall starting to gamble at a significantly earlier age than non-problem gamblers in the general population.

Table 5
Comparing Problem and Non-Problem Gamblers from States
Surveyed Between 1991 and 1992

<i>Demographics</i>	<i>Non-Problem Gamblers (N=9,103)</i>	<i>Problem & Pathological Gamblers (N=507)</i>
Male	48%	60%*
Under 30	20%	37%*
Non-Caucasian	16%	34%*
Not Married	37%	53%*
Less than HS	12%	17%*
HH Income Under \$25,000	31%	36%*
Mean age started gambling	29	21*

*Statistically significant ($p \leq .01$) as tested by chi-square analysis.

Source: Data from surveys in Montana, North Dakota, South Dakota, Texas and Washington State

In contrast to earlier surveys, problem and probable pathological gamblers in these jurisdictions are no more likely to have low annual household incomes than non-problem gamblers in the general population. While there are undoubted biases in telephone surveys against including lower income respondents, the lack of association between income and gambling-related problems in these states may be due to the generally lower income levels in these jurisdictions compared to jurisdictions surveyed earlier.

Weekly Gambling. Problem and probable pathological gamblers in the general population are significantly more likely than non-problem gamblers to wager frequently. While 19% of respondents who gamble without problems participate in one or more gambling activities on a weekly basis, 52% of lifetime problem and probable pathological gamblers and 69% of current problem and probable pathological gamblers participate in one or more gambling activities on a weekly basis. Problem and probable pathological gamblers are significantly more likely than non-problem gamblers to gamble weekly on every type of gambling. A cost-effective approach to identifying at-risk individuals in general population or other surveys would be to screen for frequent gambling involvement before administering lengthier and more specific questionnaires intended to assess problematic gambling behaviors.

Expenditures on Gambling. In every state, non-problem gamblers report monthly expenditures on gambling that are significantly lower than the monthly gambling expenditures reported by problem and probable pathological gamblers. In the states surveyed, non-problem gamblers estimate that they spend an average of \$66 per month on various types of gambling while problem and probable pathological gamblers estimate that they spend an average of \$302 per month. Even if problem and probable pathological gamblers under-report their gambling expenditures, the amounts they do report are significantly higher than the amounts reported by non-problem gamblers.

It is interesting to note that even the estimates of expenditures on gambling among non-problem and problem and probable pathological gamblers who gamble weekly or more often differ significantly. Non-problem gamblers who gamble weekly estimate that they spend an average of \$181 per month on different types of gambling while problem and probable pathological gamblers who gamble weekly estimate that they spend an average of \$415 per month. This finding suggests that screening at-risk individuals about their gambling expenditures may be another fruitful method for identifying problematic gambling involvement despite the likely under-reporting of such expenditures by problem gamblers.

Findings in United States jurisdictions on gambling frequency and expenditures parallel work by Dickerson and his colleagues in Australia. In addition to frequency and expenditures, these researchers include time spent on gambling per session as well as per week in a "levels of involvement" model of gambling-related difficulties. It would be worthwhile to add the dimension of time expenditure to surveys in the United States to determine the correlation of this dimension of gambling involvement with gambling-related problems.

DISCUSSION

The states where surveys of gambling and problem gambling have been done differ in terms of the types of gambling legalized in each jurisdiction, in terms of gambling participation and in terms of the demographic characteristics of the general population.

To facilitate comparisons across jurisdictions, *cross-jurisdictional averaging* and *cross-temporal averaging* are used to elicit patterns in

prevalence rates across jurisdictions and over time. Cross-jurisdictional averaging is used to account for regional variations in gambling availability on reported prevalence rates and is done by adding prevalence rates of jurisdictions in different regions of the United States and then dividing the total by the number of jurisdictions in each region. Cross-temporal averaging is used to account for the impact of heightened public awareness of problem gambling since the early 1990s on reported prevalence rates and is done by adding prevalence rates for jurisdictions in different regions where surveys were done at approximately the same time and then dividing the total by the number of jurisdictions in each region.

All of the states where surveys have been completed have permitted wagering on bingo and charitable games as well as parimutuel wagering on horses and/or dogs for many years. At the time these surveys were done, all of the states except North Dakota and Texas had state lotteries operating. Wagering in card rooms was legal in California, Iowa, Maryland, Montana, North Dakota, South Dakota and Washington State at the time of these surveys. Casino gambling was legal in New Jersey, North Dakota and South Dakota at the time of these surveys but not in Iowa or Washington State. Widely available video lottery terminals (VLTs) and gaming machines or devices were legal in Maryland, Montana, New Jersey and South Dakota and wagering on sports events was legal in Montana and North Dakota when these surveys were conducted.

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

Prevalence rates among states surveyed in 1990 and earlier tend to be lower than prevalence rates among states surveyed after 1990. Among states surveyed in 1990 and earlier (California, Iowa, Maryland, Massachusetts, Minnesota, New Jersey, New York), the average lifetime prevalence rate is 2.1% in the Central and Midwestern states compared to 4.2% among Northeast and Western states. Among states surveyed in 1991 and later (Connecticut, Montana, North Dakota, South Dakota,

Texas, Washington State), the average lifetime prevalence rate is 3.3% in the Central and Midwestern states compared to 5.4% among Northeast and Western states.

Ethnicity represents the major demographic difference among jurisdictions where gambling surveys have been done. The population in states in the Northeast and West is far more ethnically diverse than the population in Central and Midwestern states. Nearly a third of the population in California and Texas is non-Caucasian; a quarter of the population in Maryland and New York is non-Caucasian; and nearly a fifth of the population in New Jersey and Washington State is non-Caucasian. Ethnic minorities in California and Texas are largely Hispanic; in the Eastern states, African-Americans make up the majority of the minority population; in Washington State, there is a substantial Asian minority.

Cross-jurisdictional and cross-temporal averaging show that, despite substantial differences, states with few non-Caucasian residents and with recently legalized gambling, like Iowa and South Dakota, tend to have lower rates of problem and probable pathological gambling. At the higher end of the spectrum are states like California and New Jersey with heterogeneous populations and/or longer access to legalized gambling.

In contrast to variations in the prevalence of problem gambling, individuals with gambling-related problems are strikingly similar across jurisdictions. This is true regardless of the method used to identify problematic gambling behaviors, the availability of legalized gambling in that jurisdiction or the rate of gambling participation in the general population. In states where gambling-related problems were assessed with the CCSM, pathological gamblers were more likely to be male, under the age of 35 and unmarried than others in the general population. In states where gambling-related problems were assessed with the SOGS, problem and probable pathological gamblers were more likely to be male, non-Caucasian, under the age of 30 and unmarried than others in the general population.

Data on gambling and problem gambling in the United States support links that have been identified between continuous types of gambling and gambling-related problems (Dickerson, 1993). Among states where surveys were completed in 1990 or earlier, the lifetime prevalence of problem and probable pathological gambling is highest among respondents who ever wagered on dice games, games of personal skill

and sports. Among states where surveys have been completed since 1990, the current prevalence of problem and probable pathological gambling is highest among respondents who have wagered in the past year on parimutuel events, on bingo or keno, on sports events or on card and dice games.

Finally, these data provide solid evidence that problem gambling is both reversible and treatable. Analysis of differences between lifetime and current prevalence rates shows that substantial proportions of individuals who experience gambling problems at some time in their lives do not score as having a gambling problem currently. The proportion of lifetime problem and pathological gamblers who do not have current difficulties ranges from 39% in Montana to 52% in South Dakota (where a 6-month rather than 12-month current measure was used).

Natural recovery from alcohol and drug addiction is a well-recognized phenomenon although the research literature on natural recovery is small. While natural recovery from alcohol, drugs and gambling does occur, this should not be viewed as an occasion to avoid establishing or to eliminate treatment services for individuals with these difficulties. Rather, it suggests that existing treatment programs may need to incorporate notions of natural recovery into their treatment regimens in order to enhance the likelihood that problem and pathological gamblers seeking help obtain the most appropriate services.

CONCLUSION

There are numerous theoretical and methodological issues to be considered as we move forward with studies of gambling and problem gambling in the general population. Survey research is expensive and should be undertaken only when needed information cannot be obtained in other ways. The strength of the survey approach lies in the consistent information obtained from large numbers of individuals. This strength is enhanced by careful attention to the construction of the sample, the design of the questionnaire and the training of interviewers (Fowler, 1988). While there are critical challenges in conducting surveys of gambling and problem gambling in the general population, this approach remains an important and cost-effective method for obtaining information about gambling that is unavailable from other sources.

From a methodological perspective, improved methods for detecting problem and pathological gambling in the general population are badly needed. While the South Oaks Gambling Screen has been widely used, it is based on out-dated diagnostic criteria for pathological gambling. In addition, the sensitivity and specificity of the screen in general population surveys are not well-understood. Although the stigma associated with gambling has declined, there is also the question of the validity of information elicited from respondents with gambling-related problems. Finally, non-response rates for telephone surveys have increased in recent years and pose a particular problem for researchers investigating sensitive topics such as gambling. Responding to these challenges while maintaining comparability with existing baseline studies of gambling and problem gambling in the general population will require both care and ingenuity.

From a theoretical point of view, many of the questions now being asked about gambling and problem gambling cannot be answered by single surveys or clinical research. Instead, longitudinal research is required to answer questions posed by policy-makers, administrators and clinicians about the social impacts of legalized gambling and its costs for individuals, families and communities. Reasons for the lack of longitudinal research include the difficulty of obtaining funds to address an issue that does not clearly fall into a single intellectual and institutional domain and the reluctance of state governments and other funding agencies to make multi-year commitments to funding research on this topic. Nevertheless, longitudinal research is needed to assess changes in gambling behavior over time, to measure the association of such behaviors with the availability of different types of legalized gambling, and to estimate the costs of gambling and problem gambling to society.

Like other kinds of social science, research on gambling and problem gambling must serve multiple purposes and meet a variety of needs (Reichardt & Cook, 1979). As we move forward, it will be important to use a variety of methods to provide insights that no single approach can yield. Since all scientific methods contain biases, multiple research techniques (including experimental, clinical, historical, ethnographic and survey approaches) are needed to resolve puzzles and discrepancies as well as to provide a much-needed depth of perception to the field of gambling studies.

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