

Epidemiological Surveys of Pathological Gambling: Critique and Suggestions for Modification

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Epidemiological studies of problem and pathological gambling were examined for their accuracy. Fundamental flaws and biases were found in these surveys. These include problems with survey instruments; nonresponses and refusal bias; the exclusion of institutionalized populations; exclusion of other groups; and failure to protect against denial on the part of the respondent when others are present near the telephone. Based on the issues discussed, one can reasonably be expected to assume that most epidemiological surveys seriously underestimate the extent of problem and pathological gambling. Alternative strategies for addressing these issues are discussed. These strategies include the use of field interviews, surveys of institutionalized populations, frequent player surveys and significant other surveys. The value and potential problems of these approaches are also discussed.

Epidemiological studies of problem and pathological gambling have been or are being conducted in Canada (e.g., Insight Canada

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Research, 1993; Ladouceur, 1991), Spain (Becoña, 1993), the United States (e.g., Volberg and Steadman, 1988; 1989; Volberg, 1994; Wallich, 1993a), New Zealand (Abbott and Volberg, 1991; 1992), and Australia (Dickerson & Hinchy, 1988). Discussions of the methods which are being used in the studies is imperative. With that concern in mind, several questions need to be answered: Are the methods being used the best that social scientists can offer to state, provincial, and national governments? Are procedures which are being used adequate to that task of uncovering rates of problem and pathological gamblers? What other limitations are there to these studies? How can researchers make corrections for these problems?

MEASURES OF PROBLEM AND PATHOLOGICAL GAMBLING AMONG ADULTS

Measures used in epidemiological research in the past ten years include the South Oaks Gambling Screen (the SOGS) and modifications of it (Lesieur and Blume, 1987; 1993; Laudergeran, Schaefer, Eckhoff and Pirie, 1990; Omnifacts Research, 1993), the American Psychiatric Association's diagnostic criteria for pathological gambling (Bray, Kroutil, Luckey, Wheelless et al., 1992; Laventhal and Horwath, 1990; Reilly and Guida, 1990; Becoña, 1993), and the Cumulative Clinical Signs Method (Sommers, 1988).

Researchers in New Zealand, Spain, five provinces in Canada, and fourteen states in the United States have used the South Oaks Gambling Screen (the SOGS) (see Lesieur & Blume, 1993; Legarda, Babio & Abreu, 1992) in order to estimate the extent of problem and pathological gambling in epidemiological studies. The SOGS is a validated, reliable instrument developed for screening chemical dependency and other clinical populations for gambling problems.

Neither the Cumulative Clinical Signs Method (CCSM) nor the American Psychiatric Association diagnostic criteria have been subjected to rigorous validity and reliability testing. The issues of validity and reliability of the CCSM when compared to the SOGS have been discussed by Culleton (1989) and Volberg and Banks (1990). The fact that 144 subjects were used in the development and testing of the CCSM compared with 1,616 for the SOGS is particularly telling. The

validity of the DSM-III-R and DSM-IV have been examined (Lesieur, 1988; Lesieur & Rosenthal, 1991; Lesieur & Rosenthal, in press) while the reliability has not. Hence, the surveys using these procedures (Bray et al, 1992; Reilly and Guida, 1990; Becoña, 1993) can be challenged on that basis.

Laventhal and Horwath, in a study conducted for the Indiana State Lottery (1990) modified the DSM-III-R criteria so that they only applied if the person had developed them as a result of the lottery. Neither the validity nor reliability of this modification have been examined.

In spite of validity and reliability checks, the use of the SOGS in epidemiological studies has not gone without criticism (see Lesieur & Blume, 1993). Culleton (1989) and Dickerson (1993), for example, have cautioned against high false positives in general population surveys. Abbott and Volberg (1992) examined this possibility in their New Zealand survey. A two-stage methodology was used whereby a telephone survey was conducted followed by selectively reinterviewing those individuals who scored three or more on the SOGS in face-to-face interviews. Using fifty-two questions that make up a potential six-dimensional scale, and inferring a DSM-III-R diagnosis from that, the interviewers made an assessment of whether or not the respondent was a pathological gambler. The results questioned the accuracy of the SOGS for distinguishing pathological gamblers from the general population. In spite of an overall efficiency for the SOGS of .88, the survey showed that only 40% of people predicted to be current pathological gamblers using the SOGS "actually" were. However, this "actual" estimate has problems; i.e., the 40% could actually be 60%, 80% or some other figure.

In the New Zealand survey, while the six-dimensional questions were in the interview guide, the DSM-III-R criteria were not. One would have to assume that each interviewer actually made the DSM-III-R assessment using the six dimensional questions. Had the six dimensions related to all of the DSM-III-R criteria, the inference would have been understandable. However, several DSM-III-R criteria were absent from the questionnaire. In other words, a validated, reliable instrument was tested using one that had not been properly validated or examined for reliability. Having said this, however, the six dimensions appear to have face validity and represent a potentially valuable assessment of self-reported problems that could supplement the SOGS.

MODIFYING AND ALTERING THE SOGS

Individuals in New Zealand were more likely to respond positively to certain items in the SOGS than people in the United States (Abbott and Volberg, 1992). Cross-cultural differences may possibly explain that differences. There, the cross-cultural differences were not as great as they would be in translation. The validity of the instrument as well as its reliability need to be examined in such cross-cultural instances. Translations of the South Oaks Gambling Screen have been used in epidemiological studies done in French (Ladouceur, 1991; Baseline Marketing, 1992) and Spanish (Volberg and Steadman, 1988; Legarda et al., 1992; Wallisch, 1993a), yet only one of these studies (Legarda et al., 1992) examined the SOGS for cross-cultural validation. The quality of the translation itself can also create problems in cross-cultural and multi-lingual research.

Several researchers have substantially altered the SOGS when conducting epidemiological research (Laundergan, Schaefer, Eckhoff and Pirie, 1990; Omnifacts Research Ltd, 1993). The altered versions were no longer validated, reliable instruments. For example, Omnifacts Research altered the SOGS by creating a screening question "Have you ever borrowed money to gamble or to pay for your gambling debts?" instead of the using the different forms of borrowing that are in the SOGS (see Lesieur and Blume, 1987 or 1993 for question wording). If the answer was "no" to this question then no other financial questions were asked. In other words, the following items in the SOGS were *not* asked in the Nova Scotia study unless the "Have you ever borrowed . . ." question was answered affirmatively:

- Borrow from household money from spouse, partner, relatives, or in-laws
- Use of credit cards
- Borrowing from loan sharks
- Cashing in stocks, bonds or other securities
- Selling personal or other family property
- Borrowing from checking account

How the researchers at Omnifacts Research thought that cashing in stocks, bonds or other securities, or selling personal or other family property to finance gambling was "borrowing" is a mystery. Essentially, Omnifacts Research created an "improved" version of the SOGS

which ended up undercounting the number of probable pathological gamblers. The accuracy of the prevalence rates became more confused when Omnifacts altered another question which could have had the opposite effect.

PROBLEMS WITH UNSAMPLED AND UNDERSAMPLED GROUPS

The studies discussed so far have not sampled individuals in treatment settings, under institutional care, or under confinement. There is reason to believe that this exclusion will lead to an undercount of the rate of problem gambling in the population.

Systematic research on inpatient chemical dependency treatment facilities (Lesieur, Blume and Zoppa, 1986; Jacobs, 1992, June), therapeutic communities (Lesieur & Heineman, 1988) and in cocaine treatment programs (Rounsaville, Anton, Carroll, Budde, Prusoff & Gawin, 1991; Steinberg, Kosten & Rounsaville, 1992) has found that 9-15% of these patients can be diagnosed as pathological gamblers with an additional 10-15% showing signs of problematic gambling. One study of admissions into a psychiatric hospital found that 6.5 percent were pathological gamblers (Lesieur & Blume, 1990). Studies of incarcerated offenders reveal high rates as well. For example, one study conducted in two New Jersey prisons found 10-30 percent of those surveyed were probable pathological gamblers (Lesieur and Klein, 1985, April). That survey had methodological problems but a better designed Nevada study of consecutive prison admissions (Templer, Kaiser and Siscoe, 1993) found 26 percent were probable pathological gamblers.

In essence, there is a need to supplement surveys with data from alcohol, drug and psychiatric inpatient or intensive outpatient treatment programs as well as from prison and jail populations. Any such supplement will undoubtedly increase the percentage of the adult population at risk for gambling problems.

The problem of not counting hospitalized individuals is similar to the problem of not counting other institutionalized populations. Damage to physical health, particularly with regard to depression, migraine headaches, intestinal disorders and other stress-related diseases have been linked to pathological gambling (Lorenz and Yaffee, 1986).

One would presume that these problems would bring people into hospitals. There is contradictory evidence because pathological gamblers report (to the author) that they would not want to spend the money or take the time away from their gambling. Without surveys we have no way of knowing if the currently hospitalized have higher, lower, or similar rates of problem and pathological gambling than the general population.

The homeless and people in the military have also typically been excluded from epidemiological studies. There are no studies of problem and pathological gambling among the homeless. One would suspect that the rates of these problems are low because the homeless have limited funds; however, that argument could apply to alcohol and drug use as well.

Most telephone surveys would automatically include military personnel living at home but would exclude those living in barracks and military overseas. However, a Department of Defense study done in the United States found the problem gambling rate about the same as for the general population (Bray et al., 1992). The probability is high that a similar situation would be found in other countries as well.

Unless there is a separate study of youth conducted at the same time as the adult survey, youth will not be counted. Research using various modifications of the SOGS has been done in Minnesota (Winters and Stinchfield, 1993), Texas (Wallisch, 1993b), Washington State (Volberg, 1993), Nova Scotia (Omnifacts Research Limited, 1993), and in Quebec (high school students only) (Ladouceur and Mireault, 1988). The telephone interview studies have methodological problems similar to those found in other surveys with additional issues that need to be addressed. Measures validated on adult populations are not necessarily transferable to youth and the need to get parental consent poses additional problems. In addition to these problems high school studies obviously exclude dropouts and others not in school.

PROBLEMS WITH TELEPHONE INTERVIEWS

Most of the epidemiological studies of pathological gambling done to date have relied primarily on telephone interviewing. Such a method has flaws.

Individuals without phones pose problems. In particular, some problem gamblers will have their phones cut off periodically for non-

payment of their phone bill. Other will be too poor to have phones. Obviously problem gamblers without phones will not be counted in phone surveys. While most of the poor have phones in advanced industrial societies, selected population groups will be undersampled through a telephone-only procedure.

Another of the major flaws in telephone surveys is the production of high nonresponse and refusal rates. Response rates ranging from 29.6% (Reilly and Guida, 1990) to 76% (Volberg, 1989, June) have been reported. The 29.6% nonresponse rate in the Reilly and Guida study was unusually low, rendering their findings useless. In the Laventhal and Horwath study (1990) "no answer" outnumbered the number of interviewees (an indication that there was no callback system used in the study) and there was a 29% refusal rate. Another methodological problem was the use of age and sex quotas instead of random methods for selecting subjects within households.

One source of nonresponse (true for field as well as telephone interviewing) is the inability to contact individuals at home. "Not at home" can mean: a) in a card game; b) at a race track; c) at a casino; d) playing bingo; or e) gambling at some other location.

Nonresponse, as well as refusal, can also mean: a) too busy handicapping sports or horses, or watching sports on T.V. to be bothered with an interview (in the later stages of gambling career); b) too emotionally obsessed with gambling problems or too depressed; or c) not answering the phone or not speaking to anyone on the phone because creditors might be calling. The high number of nonresponses and "not at home" will mean that the most serious, desperation stage compulsive gamblers will be seriously underrepresented in any survey on compulsive gambling.

The telephone interview process itself is also biased in the direction of undercounting problem and pathological gamblers. Once people are contacted on the phone, they are asked a series of questions which lead up to potentially embarrassing items. The power of denial in the life of the compulsive gambler can take hold at this point. Denial takes two forms: denial and minimization of problems to themselves, and denial and minimization of problems to significant others. Telephone surveys fail to guard against both of these sources of denial and minimization.

Denial of problems to oneself is something which only intensive interviewing may eventually uncover. However, telephone surveys fail to concern themselves with the presence of others in the room with

them while people are being interviewed and with the problem of extension phones. If someone an interviewee wanted to conceal their problems from is in the room or has picked up an extension, that interviewee will not be honest with interviewers. As stated earlier, 10 percent of those who eventually are uncovered in treatment settings as problem gamblers denied that they had any problem when first queried. Such individuals may put on a "professional gambler" image over the phone, will deny they are currently gambling, or will refuse to answer questions.

Some people will exaggerate. We can check up on them through follow-up interviews but we cannot double-check on refusals, people not at home, people not interviewed because they are institutionalized, other uncounted groups and individuals who lie or conceal their problems.

Each of these particular flaws in the telephone interviewing process would lead us to believe that the rates found in these epidemiological surveys seriously *underestimate* the extent of the problem. Whether they exceed the hypothesized extent of false positives is a question that also needs to be addressed. Strategies for correcting these problems need to be devised and implemented in order to have accurate estimates of the rate of problem gambling in the population.

ALTERNATIVE STRATEGIES

Field Interviews

The combination of telephone and field interviews pioneered by Abbott and Volberg (1991; 1992) was also used in a limited way in Alberta (Wynne Resources, 1993). This technique is superior to a telephone only strategy in that it double checks on the veracity of the respondents and guards against false positives. However, future studies need to use validated, reliable criterion measures to assess the findings. Also, as the authors note, this follow-up method fails to uncover false negatives; hence, it does not fully resolve the problems noted above.

Field interviews have advantages over telephone interviews. By using a field interview strategy instead of telephone interviews for the entire survey, researchers can reduce the number of refusals. For example, in her study of problem gambling among Native Americans in North Dakota, Volberg reported a 10% refusal rate in field interviews compared with a 17% refusal rate over the phone (Volberg

with Precision Marketing, Inc, 1993, April). Field interviews will also lower the concealment of gambling problems in the presence of significant others as they can be conducted in private. As a result, field interviews should reveal higher rates of problem gambling than telephone interviews.

Comparisons of field and telephone interview techniques (Groves, 1979) reveal that individuals are more likely to feel uncomfortable when personal questions are asked on the telephone than in field interview situations. In addition, Bradburn and Sudman (1979) found that socially undesirable acts tended to be underreported in telephone interviews (however, not all researchers agree on this point). In fact, field surveys have revealed higher rates of problem gambling in samples of American Indians than revealed in telephone interviews. Volberg, for example, reports that "combined lifetime prevalence rate [problem and pathological gamblers] among Native Americans interviewed by telephone is 10.1% compared to 34.7% among Native Americans interviewed in person" (Volberg with Precision Marketing, Inc., 1993, April). Whether this is because of the change in interviewing technique or represents a real difference can only be determined with further surveys. If similar results are found, it is possible that most of the studies of pathological gambling done to date have underestimated the prevalence rate for the general population by a factor of three and a half because of this element alone.

A comparison of telephone and field interview prevalence rates needs to be made in future research in order to reassess the commonly used telephone survey technique. In this fashion researchers may find out whether there is undercounting, overcounting, or equivalent counting in comparisons of the two techniques.

Should funds become available to use face-to-face interviews, even this technique will have flaws. It will not be able to access people not at home, institutionalized individuals, and other uncounted groups unless supplemental procedures are used. Additionally, field interviews may not be able to push through personal denial.

SUPPLEMENTAL STRATEGIES

Surveys of Institutionalized Populations

As an adjunct to surveys of the general population, field interviews of randomly selected chemical dependency inpatients (and intensive outpatients), prison and jail populations, and hospitalized individ-

uals should be conducted. The rate of problem and pathological gambling for the entire population could then be adjusted accordingly. For example, if three percent of the population is institutionalized at any one period in time and 16.6% of them have gambling problems, the rate for the general population would have to be adjusted upward by 0.5 percent.

Frequent Player Surveys

Some researchers have relied on surveys of players at gambling venues and have attempted to generalize from these groups (Dickerson & Hinchy, 1988). Because of the "not at home" problem and the extreme difficulty of interviewing them at home, reliance on "frequent player" interview strategies may provide a partial, but highly complicated solution to the "not at home" problem.

Player surveys have the potential of providing profiles of problem and pathological gamblers which could be compared with problem gamblers uncovered in the general population. Several questions could be addressed: are their problem levels the same as, less than, or higher than those found in the general population? Are the types of problems they discuss similar or different from those found in the general population? Are their perceptions of problems similar to those in the general population?

Player surveys are limited in several ways. Not all frequent players will be at public gambling venues. They may hang out at sports bars, bowling alleys, pool halls, private card games, etc. Also, illegal operations will not be included. In essence, these types of players may not be accessible at all.

Player surveys introduce the problem of double-counting. A player may gamble at more than one location. In order to minimize this, the frequency of play in *any* type of gambling must be determined. Locations must be sampled (on a population proportionate to size basis); permissions must be obtained from the operators of these locations; and times of the day and day of the week need to be sampled. Often operators will not have an accurate count of the number of players on hand at any one time. Devising a population proportionate to size sample will therefore be quite difficult unless there are very few legal gambling locations in the area to be surveyed.

Significant Other Surveys

Since finding players may be difficult, uncovering problem gambling by asking people if they live with a problem gambler can be an

alternate strategy to use. Currently most surveys only use one question: "Are you living with a problem gambler?" or a variant thereof. A series of questions can be devised which address the types of problems they have experienced with this gambler. The number of problem gamblers uncovered could then be adjusted for the number of adults in the household.

With a "significant other" strategy it is possible to address the "not at home" problem when there are other adults in the household. On what would normally be the last attempt to reach the randomly selected individual and another adult is at home, this adult could be asked to answer a series of questions regarding their experiences with gambling problems in the household. In the data analysis, these individuals could be used to correct estimates of problem gamblers. The nature of the correction would be made clear in the analysis.

Even this last strategy has its limitations. Questions of validity will occur, partially in terms of false positives (again these could be validated with follow-up personal interviews), but more significantly because of concealment by the problem gambler and consequent underestimates of the problem levels by significant others. For example, when Gamblers Anonymous members and members of GamAnon compare stories, the GamAnon members report they knew only about one-tenth of what was really going on (based on interviews with GamAnon members).

Single parent households and individuals living alone would not be examined through a significant other strategy. In addition, some "dual problem" families will not be included. One person may be in prison while the other is a pathological gambler; one may hang out in bars while the other hangs out at a club with video poker machines; one may be a workaholic while the other gambles, etc.

Should a significant other technique be used, it may be possible to use frequent player surveys to further supplement the findings. Frequent player surveys could be used to uncover single parents, those living alone in households, and those involved in dual problem relationships.

CONCLUSION

This article has made a case for an undercount of problem and pathological gamblers as a result of not at home, refusal, failure to count institutionalized and other specialized populations, and denial to

self and others, while other researchers contend there has been an overcount. The proponents of the "overcount" view repeatedly give sparse attention to false negatives in their arguments or assume that the number of false negatives is exceedingly low. While the actual extent of false positives and false negatives is unknown, these proponents fail to consider those who are not included in the "count" in the first place.

It is the author's belief that an accurate counting of pathological gamblers is impossible at the present time. This does not mean that increasingly accurate estimates are impossible. At the very least, face-to-face interviews should be used. However, even if we combine all the supplemental methods outlined above, an unknown percentage of pathological gamblers will remain uncounted.

What are the implications of undercounting or overcounting for public policy? If researchers undercount the number of problem and pathological gamblers there is the risk that policymakers will continue to believe that a policy of neglect is the correct policy. Such a policy exists in the overwhelming majority of the states in the United States. Given the existing policy of neglect, the "cost" of overcounting exists only for researchers and not for pathological gamblers and their family members in trouble.

The author recognizes that problem gamblers frequently go in and out of problems, stop on their own, and illustrate other, more complex patterns. The intricacies of these patterns have not been fully examined. Whether this complexity is "countable" or not remains to be seen and should be investigated in future research.

A cautionary note on cost estimates of problem gambling is in order. Existing cost estimates (for example, Better Government Association, 1992) are frequently based on sparse data from Gamblers Anonymous or treatment samples and extrapolations to numbers involved in epidemiological surveys. Given the comments on method, concealment and denial, researchers need to be careful in making cost estimates of problems based on survey respondents. It may be better to make only general estimates (e.g. Lesieur, 1992; National Council on Problem Gambling, 1993) rather than "precise" ones based on a shaky foundation.

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