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The NODS-CLiP: A Rapid Screen for Adult Pathological and Problem Gambling

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Abstract

Objectives—To describe and evaluate tests of the performance of the NODS-CLiP, an efficient standardized diagnostic interview instrument for adult pathological and problem gambling.

Setting and Samples—Identical batteries of diagnostic questions about gambling behavior, motives, and thoughts were administered to participants in eight general adult population field studies conducted in the United States between 1999 and 2003, including six state-level random-digit-dial (RDD) telephone surveys, one national RDD survey, and one in-person systematic random sample survey of commercial gambling patrons in eight states. Total survey N = 17,180. Response rates ranged from 24% to 71%.

Measures—Data from all experienced gamblers (N=8,867) were re-analyzed to compare diagnostic status derived from the 17-item NORC Diagnostic Screen for Gambling Disorders (NODS), a validated DSM-IV-based instrument, with results from all 2- to 4-item subsets of NODS items.

Results—Three NODS questions, pertaining to loss of Control, Lying, and Preoccupation (the “CLiP”), requiring one minute to administer, identified virtually all pathological gamblers and most problem gamblers diagnosed by the complete NODS. The CLiP has excellent sensitivity and specificity for NODS constructs.

Conclusions—A two-stage NODS-CLiP procedure appears quite promising as an efficient epidemiological instrument for general population research and clinical triage for gambling disorders.

Keywords

pathological gambling; problem gambling; diagnostic screening; NODS-CLiP

INTRODUCTION

This paper is the first published report on the development of an efficient screening procedure for identifying problem and (especially) pathological gambling in epidemiological research and in clinical settings. The original plan of the research was to develop a procedure that would minimize the time burden of administering diagnostic screening for gambling disorders in general population surveys. However, in view of the comorbidities of these disorders with other mental and substance use disorders (Kessler et al., 2008; Petry, Stinson, & Grant, 2005) and growing numbers of states mandating screening for pathological and problem gambling in substance abuse and mental health treatment

populations, there is a clear need for a practical assessment tool for use in these settings as well, one that is easy to implement and requires minimal training and administration time, has excellent sensitivity (correctly identifying a very high proportion of pathological and problem gamblers) and specificity (correctly identifying a high proportion of non-pathological/problem gamblers).

Pathological gambling was first recognized as a diagnosis in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) (American Psychiatric Association, 1980). The diagnostic criteria for pathological gambling were refined in DSM-IV (American Psychiatric Association, 1994) based on studies of clinical populations (Lesieur & Rosenthal, 1998). Pathological gambling is a chronic, relapsing disorder that has a general population prevalence recently estimated among U.S. adults as between 0.4 and 1.1% (Gerstein et al., 1999; Welte et al. 2001; Petry et al. 2005; Kessler et al. 2008), similar to schizophrenia or bipolar disorder (Potenza et al. 2001). Although a less serious level of gambling disorder is not explicitly recognized in DSM-IV, most gambling researchers and clinicians regard “problem gambling” as a distinct subclinical pattern with a prevalence of 1–2% in the general population, marked by signs and symptoms shared with pathological gambling but presenting with lower symptom counts, lesser severity, and greater transience than pathological gambling (Toce-Gerstein & Gerstein, 2004).

In the first critical review of problem gambling instrumentation, only two structured screening instruments for problem and pathological gambling were identified (Volberg & Banks, 1990). Today, more than 20 such instruments have been developed for a variety of purposes, including screening, assessment, diagnosis, treatment planning, and treatment outcome monitoring, with some instruments adapted specifically for use with youth (Stinchfield et al. 2004).

The NORC DSM-IV Screen for Gambling Problems (NODS) is a hierarchically structured 17-item screen that was originally developed for use in a U.S. national epidemiological and policy study (Gerstein et al. 1999) and deployed subsequently by researchers in the United States and elsewhere (Bakken et al. 2009; Hodgins, 2004; Hong et al. 2009; Sartor et al. 2007; Wickwire et al. 2008; Wulfert et al. 2005; Xian et al. 2008). The 17 NODS items yield a score ranging from 0 to 10, corresponding to the number of discrete DSM-IV criteria for pathological gambling. A presenting score of 5 or more qualifies as pathological. In addition, scores of 3 or 4 have been classified as corresponding to the subclinical syndrome of problem gambling, and scores of 1 or 2 have been defined as an at-risk population with increased likelihood of progression to problem or pathological status, relative to persons with scores of zero (Toce-Gerstein et al. 2003).

As suggested by the development of screening tools for alcoholism such as the AUDIT/AUDIT-3 (Bush et al. 1998; Dawson et al. 2005) and the MAST/Brief-MAST (Pokorny et al. 1972), and recommended by other gambling researchers (Kessler et al. 2008), the present authors explored whether a subset of standard NODS items first identified as useful in achieving more cost-efficient survey administration might also be used in clinical contexts to filter out most of the true negatives (clear of gambling pathology or problems) with very few false negatives. The intent here was to rearrange the NODS with a more parsimonious structure, so that a few questions would be sufficient to determine diagnostic status correctly for most persons screened, and additional diagnostic probing could be limited to a small proportion of both clinical and survey populations.

An earlier attempt to meet these objectives was the 2-item Lie-Bet Screen, derived from a 12-item scale based on DSM-IV that was administered to 191 members of Gamblers

Anonymous and 171 employees of a Veterans Administration Medical Center (Johnson et al. 1997).

Discriminant analysis was used to identify two items that best differentiated between the two groups. Further validation with 146 problem gamblers and 277 controls was carried out (Johnson et al. 1998). However, the Lie-Bet Screen did not perform well in screening for problem gambling in specialised treatment programmes in three U.S. states (Rugle 2004). National prevalence surveys of adolescents and adults in Norway (Götestam et al. 2004) found that the Lie-Bet Screen performed poorly as a screen for pathological gambling per se, but a positive response to one or both items did perform well with respect to detecting individuals with DSM-IV scores of 3 or more on the full screen, with a sensitivity of 92% and specificity of 95%, relative to the results of the full screen. The disparity of Lie-Bet results across different samples suggests that initial reports, no matter how promising, should be treated as provisional, and further studies be undertaken by independent research teams to determine the robustness of the provisional findings.

METHODS

Screening Instrument

The ten diagnostic criteria enumerated in DSM-IV, along with their corresponding NODS items, are displayed in Table 1. The most prevalent criterion, chasing, is reported by about 8% of all survey respondents in the sample surveys used here (see below); the least prevalent, illegal acts, by about 0.5%.

The DSM-IV specifies that meeting 5 or more criteria establishes a diagnosis of pathological gambling. While the DSM-IV has no formal nomenclature for persons below this level, researchers in the field have constructed a variety of descriptors for individuals in the subclinical range, i.e. meeting 1–4 of the criteria. Consistent with most of the prior survey literature (as described in Abbott & Volberg 1999; Shaffer et al. 1997; Lesieur & Blume 1987), and the original report on NODS data (Gerstein et al. 1999), we label persons in the upper subclinical range (3 or 4 criteria) “problem gamblers.” Consistent with the naming conventions in public health and numerous gambling studies, we label those meeting 1 or 2 criteria “at-risk gamblers,” and those reporting no criteria, “low-risk” gamblers.

Prior to fielding the NODS, its authors pilot-tested for reliability and validity in a random telephone sample of 45 respondents in the Chicago metropolitan area and a convenience sample of 40 persons recently enrolled in gambling treatment programs in the Midwest. Ninety-five percent of the clinical sample scored five or more points on the lifetime NODS; the remaining two cases scored four points—the clinical cut-point originally recommended by Lesieur and Rosenthal (1998) and confirmed by others (Jimenez-Murcia et al. 2008; Lakey et al. 2007). These results are very similar to those reported by Stinchfield (2003) using a comparable DSM-IV-based instrument. The lifetime NODS therefore appears to have strong validity in identifying clinically confirmed pathological gamblers. The test-retest reliability of the NODS was examined in a half-sample of 44 cases drawn equally from the clinical sample and the general population pilot survey. The lifetime and past-year scores were found to be highly reliable, $r=0.99$ and 0.98 , respectively, by Gerstein et al. (1999), further confirmed by other investigators (Hodgins 2004; Wickwire et al. 2008).

Survey Samples

The data analyzed in this paper were collected in eight surveys of gambling behavior: two adult components of the national Gambling Impact and Behavior Study (Gerstein et al. 1999), five state-level adult prevalence surveys (Volberg 2001a, 2001b, 2002, 2003a, 2003b), and one state-level survey restricted to seniors aged 55 and over (Shapira et al.

2002). In each study, informed consent was obtained verbally, with written interviewer attestation, before conducting the interview, using consent scripts and other human subject protections approved by the relevant Institutional Review Boards. All surveys included the same NODS module. The total sample across all studies was 17,180 participants. The subsample analyzed here comprises 8,867 participants who completed the NODS. This represents the entire sample population with significant gambling experience in six of the surveys, and stratified random subsamples in the remaining two surveys.

There were differences by survey in how gambling experience was assessed. In the two national surveys, only those respondents who reported having gambled more than five times in their lives and having lost \$100 or more in a single day or across an entire year of gambling were administered the NODS. In Arizona, respondents who had ever gambled five or more times in their lives were administered the NODS. In Nevada and North Dakota, approximately one in four respondents who gambled less than weekly and all respondents who gambled weekly or more often were administered the NODS. In Oregon and the Florida Seniors Survey, all respondents who acknowledged having ever tried one or more types of gambling were administered the NODS. In the Florida adult survey, only those respondents who had ever spent \$12 or more on gambling were administered the NODS.

Table 2 below provides an overview of key features of these 8 surveys. Further details are appended.

Analysis

The present analysis is based on the unweighted NODS data from each of the eight surveys. Weighted and unweighted estimates were checked for comparability in the initial analyses. The results were very similar, except that the weighted data sometimes indicated that the screen performed better than the unweighted data. To be conservative, we report the unweighted findings.

The 17 NODS items were analyzed initially to determine whether any small subset of items captured most or all pathological gamblers, using full NODS scores as the criterion or “gold standard”. Initial analyses were performed on the two GIBS samples. Frequencies were run to calculate the percentage of individuals who did or did not report one or more of all 2-, 3-, and 4-item combinations of NODS questions. These on/off frequencies were then cross-tabulated by the NODS taxonomy of pathological, problem, at-risk, and low risk gamblers. All combinations of items that correctly captured at least 98% of pathological gamblers were then tested in the 6 state samples, to determine whether the items were consistent performers. The eight samples were then pooled to determine overall capture rates and other relevant statistical measures.

RESULTS

One combination of three NODS questions—if any one or more of them was answered in the affirmative—identified virtually all pathological gamblers and more than 90% of problem gamblers, the best overall performance of any set of questions. These items are identified in Table 1 *in italics*. They include the screening question for Loss of Control, the screening question for Lying, and one of the two Preoccupation items (hence, the name given to the 3-item set, the **CLiP**). Unlike other sets that performed very well, this set of questions had nearly perfect sensitivity for the clinically critical group, pathological gamblers, only one of whom (in the Arizona sample) was not captured. In addition, the three items captured the great majority of problem gamblers.

Note that on the 17-item NODS, answering the screening items for Loss of Control and Lying is necessary, but not sufficient, for establishing that a person has experienced each of these criteria in her or his lifetime. A respondent must also respond affirmatively to one or more followup questions that are intended to ascertain whether the behavior has occurred repeatedly over time. As a result, a respondent who is classified as “low risk” (i.e., has never experienced any lifetime symptoms per the NODS) might still be captured by the CLiP items.

Table 3 displays the performance of the three-item screen when the respondents in the eight samples are aggregated. The first row shows the number of all gamblers across the eight samples who were administered the NODS, classified by the taxonomy of score levels. The second row indicates their distribution. The data show that about 83% of respondents who were administered the NODS were classified as low-risk. This proportion would be even higher if exclusionary criteria had not diverted non-gamblers and low-frequency gamblers from receiving the NODS. (Although it is possible that some of those so excluded might report meeting one or more criteria if screened directly, it is reasonable to assume that this group is quite small.) Since the total number of pooled respondents (17,180) was nearly double the number administered the NODS, the low-risk group comprises more than 90% of the general population.

The bottom two rows provide the number and percentage of individuals, by level of severity, who endorsed one or more items on the 3-item CLiP screen. The CLiP captured 149 out of 150 NODS pathological gamblers—99.3%, an excellent level of relative sensitivity. The CLiP also captured 93.7% of NODS problem gamblers. Combining these groups, the CLiP captured 96.2% of NODS problem and pathological gamblers, a highly satisfactory level of relative sensitivity. The specificity of the instrument, the percentage of true negatives over all those with negative results, was 88.4% for NODS non-pathological gamblers only and 90.2% for NODS non problem/non-pathological. However, this is based on a sample that excludes all non-gamblers and low-frequency gamblers as determined by other screening questions. Although not directly tested, we could extrapolate that virtually all of these latter groups would also test negative, which would yield overall sample specificities as high as 94.0% and 95.0%. If used as a first-stage screen with no other exclusionary filters, the three CLiP items would quickly and efficiently filter out the great majority of nonproblem and nonpathological gamblers, and only the remaining group—about 7% of the overall population—would need to be fully screened with the remaining NODS items.

CONCLUSION

The results of this reanalysis of NODS data from eight separate surveys with widely varying response rates indicate a good potential for using the two-stage NODS-CLiP procedure for studying problem and pathological gambling. The results also suggest that the stand-alone CLiP may be highly efficient for screening general clinical populations or patients being assessed or referred to substance abuse and mental health facilities due to other (confirmed or suspected) primary diagnoses. Confirmatory assessment of the positive result, using the full NODS or other diagnostic method, could occur immediately or in due course. Previous epidemiological work in general and clinical populations (Gerstein et al. 1999; Grant et al. 2005; Kessler et al. 2008; Ledgerwood & Downey 2002; Petry et al. 2005) leads us to expect rates of problem and pathological gambling to be elevated among these clinical groups. Use of a low-burden, rapid-assessment protocol such as the NODS-CLiP would permit pathological and problem gambling to be more frequently detected and referred or treated outside of specialty gambling treatment units.

The revised NODS, with CLiP questions at the front, may be self-administered or administered by a clinician or interviewer, on paper or by computer. The logical structure of the NODS with the CLiP screener is displayed in Table 4. The three CLiP items are presented, and if all are answered negatively, the screening is ended. If one or more of these yields a positive result, then further NODS questioning proceeds. Because the CLiP item set is highly sensitive but also quite specific, it is a promising screening tool on its own for clinicians. However, because the CLiP alone overestimates the prevalence of pathological and problem gambling in epidemiological surveys, its main epidemiological value is to reduce survey costs when used in the revised NODS configuration.

The NODS-CLiP protocol is a work in progress, and our results are presented here as a stimulus to further research and development. One potentially important limitation that should be addressed is question-order effects, an instance of the more general class of “priming” effects in survey administration (Toce-Gerstein & Gerstein 2007). The CLiP items are numbers 1, 4, and 11 in the standard 17-item NODS sequence (see Table 1) and numbers 1, 3, and 5 in the revised NODS sequence. It is possible that re-ordering the NODS items as in Table 4 would yield different answers to some of these items and possibly other NODS items. Priming effects vary, and although our judgment suggests that such effects would be very weak here, the crucible of experimentation in a split-ballot or balanced test-retest design would provide more probative evidence on the extent of pertinent question-order effects within the NODS.

The NODS-CLiP protocol is a logical conclusion from analyzing the pattern of NODS results in a series of telephone surveys of the general population (and one in-person survey of visitors to gambling venues). Confirming the validity and reliability of the NODS-CLiP assessment protocol in pertinent clinical venues such as substance abuse and mental health facilities awaits additional study. The CLiP questions by themselves may be sensitive and specific enough to NODS constructs to be used in place of the NODS in general population surveys that do not have the capability to incorporate the full NODS, with the principal caveat that this would inflate the overall prevalence estimate for combined problem and pathological gambling in these surveys and reduce the ability to study “at risk” patterns below the level of problem gambling.

SAMPLE SURVEY INFORMATION

The Gambling Impact and Behavior Study: Telephone Survey (Gerstein et al. 1999)

The Gambling Impact and Behavior Study (GIBS), was fielded in 1998 for the National Gambling Impact Study Commission. The GIBS adult telephone survey was a national random sample of U.S. residential telephone numbers, designed to proportionately represent all adult household residents at every level of gambling behavior, including nongamblers. Structured 30-minute interviews were completed with a total of 2,417 adults (age 18 and older), including 44 interviews using a Spanish translation of the questionnaire. Households were called and screened initially to roster the current residents and then randomly select one adult per household. The screening completion rate was 75.3% of households, and the interview rate among eligible respondents was 73.7%, for a composite response rate of 55.5% (for more information, see Gerstein et al. 1999). Only those respondents who reported ever having lost \$100 or more in a single day or across an entire year of gambling were administered the NODS. This restriction netted 907 gamblers who were screened for gambling problems.

The Gambling Impact and Behavior Study: Patron Survey (Gerstein et al. 1999)

The GIBS patron survey was a companion study specifically designed to capture large numbers of frequent and particularly problem and pathological gamblers efficiently, relative

to their prevalence in the household population. It sampled gamblers randomly but proportionally to their frequency of entering commercial gambling venues, and thus did not sample current nongamblers (who comprised less than 1% of the facility patrons versus 32% of household residents). Twenty-minute interviews were completed by 530 adults from a stratified sample of 21 gaming facilities in eight states, such as resort-style casinos, racetracks, and lottery ticket outlets, stratified by neighborhood income level. The distribution of the total interviews was proportional to the annual gaming receipts of these facility types (Christiansen/Cummings Associates, 1993–1997). Interview teams at each facility followed rigorous sampling rules to select, intercept, and recruit respondents at random entries/exits or main internal traffic corridors during staggered daytime and evening shifts. The interview response rate across all venues was 50.0%. Respondents who reported ever having more than \$100 in gambling losses in a single day or across a single year of their lives were administered the NODS. This netted 520 gamblers for the current analysis.

Oregon Prevalence Survey (see Volberg 2001b)

In the Oregon survey, conducted in 2000, a stratified sampling frame was used to obtain data from a representative sample of the population aged 18 and over. A screening procedure was used to preferentially complete interviews with male respondents and with respondents under the age of 35 in eligible households. This was done in order to obtain adequate sample representation of men and young adults. Using the most conservative method recommended by CASRO (Council of American Survey Organizations 1982), the response rate was calculated at 48%. In all, a total of 1,500 adults were interviewed. The sample was quite representative of the State in terms of gender, age, and ethnicity. Respondents who acknowledged ever having tried one or more types of gambling were administered the NODS. These 1,193 cases were included in the present analysis.

North Dakota Prevalence Survey (Volberg 2001a)

In order to obtain an adequate number of problem and pathological gamblers in the 2000 North Dakota survey, individuals who were at higher-than usual risk for experiencing gambling problems were recruited, using a two-phase probability strategy. First, one randomly selected respondent in each eligible household was screened to determine his or her level of gambling involvement (N=5,002). Then a stratified random sample of 1,609 respondents were selected and recruited for the full-length interview, which included the NODS: 202 of the 549 respondents who were classified as lifetime gamblers, 1,194 of the 3,284 respondents who were classified as past year gamblers, and all of the 213 respondents who were classified as weekly gamblers. This strategy yielded 1,609 respondents for the present analysis. The CASRO method of calculating response rates yields a completion rate of 71%. The achieved sample was quite representative of the total adult population in North Dakota, as estimated by the Bureau of the Census. The greatest difference between the two samples was in the proportion of Native Americans included in the final sample; however, this difference was less than 1 percent.

Nevada Prevalence Survey (Volberg 2002)

Like the North Dakota survey, the 2001 Nevada survey employed a two-phase differential probability strategy. Interviewers briefly screened 2,217 eligible households to determine their level of gambling involvement. Approximately one in four respondents who gambled less than weekly and all respondents who gambled once a week or more often were administered the full interview, which included the NODS. This provided 708 respondents for this analysis. The CASRO method yields a response rate of 24% for the Nevada survey, if all of the numbers whose status could not be determined are excluded from the denominator. The achieved sample was quite representative of the adult population in Nevada, as determined by the Bureau of the Census. The greatest differences between the

two samples were in the proportion of men (43.6% in the sample vs. 50.8% in the State) and Whites (70.8% of the sample vs. 65.2% in the State).

Florida Prevalence Survey (Shapira et al. 2002)

The Florida survey, conducted in 2001, was a random-digit dial survey with a total sample of 1,504 adults. Of these, only respondents who indicated that they had ever spent \$12 or more on gambling were administered the NODS. Based on the information in the published report and using the categories advocated in the CASRO approach, the response rate for this survey was approximately 34%. This survey yielded 1,314 adults for inclusion in this analysis.

Florida Seniors Prevalence Survey (Volberg 2003a)

In this 2003 survey of Florida seniors, a stratified sampling frame was used to obtain a representative sample of the population aged 55 and over, meeting quotas for gender, age and ethnicity based on 2000 census data. The CASRO method yielded a response rate of 29%, with a total of 1,260 people interviewed. Of these, the 1,024 respondents who acknowledged having ever tried one or more types of gambling were administered the NODS.

Arizona Prevalence Survey (Volberg 2003b)

In the 2003 Arizona survey, quotas for gender and region were used to help ensure a representative sample of adult Arizonans. A total of 2,750 adults were interviewed. Of these, only those respondents who had ever gambled five or more times in their lives were administered the NODS, netting 1,592 participants for this analysis. The CASRO method yields a response rate of 34% for the Arizona survey. When compared with data from the 2000 Census, the sample generally was well-representative of the State; however, two groups were underrepresented: younger adults (underrepresented by about 5%) and Hispanics (underrepresented by 6.5%).

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References

- Abbott, MW.; Volberg, RA. Report No 1 of the New Zealand Gaming Survey. Wellington, NZ: Department of Internal Affairs; 1999. Gambling and Problem Gambling in the Community: An International Overview and Critique.
- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4. Washington, DC: 1994.
- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 3. Washington, DC: 1980.
- Bakken IJ, Gøtestam KG, Gråwe RW, Wenzel HG, Øren A. Gambling behavior and gambling problems in Norway 2007. *Scandinavian Journal of Psychology*. 2009; 50(4):333–339. [PubMed: 19298249]
- Bush K, Kihlavan DR, McConell MB, Fihn SD, Bradley KA. The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Archives of Internal Medicine*. 1998; 158(16):1789–95. [PubMed: 9738608]

- Christensen Cummings Associates. Gross Annual Wager of the United States (annual special editions). International Gaming and Wagering Business; 1993–1997.
- Council of American Survey Organizations. [accessed March 15, 2006] On the definition of response rates—A special report of the CASRO task force on completion rates. 1982. Posted at <http://www.casro.org/resprates.cfm>
- Dawson DA, Grant BF, Stinson FS, Zhou Y. Effectiveness of the derived alcohol use disorders identification test (AUDIT-C) in screening for alcohol use disorders and risk drinking in the US general population. *Alcoholism: Clinical And Experimental Research*. 2005; 29(5):844–54.
- Gerstein, DR.; Murphy, SA.; Toce, MT.; Hoffmann, J.; Palmer, A.; Johnson, RA.; Larison, C.; Chuchro, L.; Buie, T.; Engelman, L.; Volberg, R.; Harwood, A.; Tucker, A.; Christiansen, E.; Cummings, W.; Sinclair, S. Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission. Chicago: National Opinion Research Center at the University of Chicago; 1999. (<http://cloud9.norc.uchicago.edu/dlib/ngis.htm>)
- Götestam KGA, Johansson HG, Wenzel Simonsen I-E. Validation of the Lie/Bet Screen for pathological gambling on two normal population data sets. *Psychological Reports*. 2004; 95(3 Pt 1):1009–13. [PubMed: 15666948]
- Grant JE, Levine L, Kim D, Potenza MN. Impulse control disorders in adult psychiatric inpatients. *American Journal of Psychiatry*. 2005; 162(11):2184–88. [PubMed: 16263865]
- Hodgins D. Using the NORC DSM Screen for Gambling Problems as an outcome measure for pathological gambling: Psychometric evaluation. *Addictive Behaviors*. 2004; 29(8):1685–90. [PubMed: 15451138]
- Hong SI, Sacco P, Cunningham-Williams RM. An empirical typology of lifetime and current gambling behaviors: Association with health status of older adults. *Aging and Mental Health*. 2009; 13(2): 264–273.
- Jiménez-Murcia S, Stinchfield R, Alvarez-Moya E, Jaurieta N, Bueno B, Granero R, Aymamí MN, Gómez-Peña M, Martínez-Giménez R, Fernández-Aranda F, Vallejo J. Reliability, validity, and classification accuracy of a Spanish Translation of a measure of DSM-IV diagnostic criteria for pathological gambling. *Journal of Gambling Studies*. 2008 [Epub ahead of print].
- Johnson EE, Hamer R, Nora RM, Tan B, Eisenstein N, Engelhart C. The lie/bet questionnaire for screening pathological gamblers. *Psychological Reports*. 1997; 80(1):83–88. [PubMed: 9122356]
- Johnson EE, Hamer RM, Nora RM. The lie/bet questionnaire for screening pathological gamblers: A follow-up study. *Psychological Reports*. 1998; 83(3 Pt 2):1219–24. [PubMed: 10079719]
- Kessler RC, Hwang I, LaBrie R, Petukhova M, Sampson NA, Winters K, Shaffer H. DSM-IV pathological gambling in the National Comorbidity Survey Replication. *Psychological Medicine*. 2008; 38(9):1351–1360. [10.1017/S0033291708002900](https://doi.org/10.1017/S0033291708002900) [PubMed: 18257941]
- Lakey CE, Goodie AS, Lance CE, Stinchfield R, Winters KC. Examining DSM-IV criteria for pathological gambling: psychometric properties and evidence from cognitive biases. *Journal of Gambling Studies*. 2007; 23(4):479–98. [10.1007/s10899-007-9063-7](https://doi.org/10.1007/s10899-007-9063-7) [PubMed: 17453325]
- Ledgerwood DM, Downey KK. Relationship between problem gambling and substance use in a methadone maintenance population. *Addictive Behavior*. 2002; 27(4):483–91.
- Lesieur HR, Blume SB. The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry*. 1987; 144(9):1184–88. [PubMed: 3631315]
- Lesieur, HR.; Rosenthal, RJ. Analysis of pathological gambling. In: Widiger, TA.; Francis, AJ.; Pincus, HA.; Ross, R.; First, MB.; Davis, W.; Kline, M., editors. *DSM-IV Sourcebook*. Vol. 4. Washington, DC: American Psychiatric Association; 1998. p. 393-401.
- Petry NM, Stinson FS, Grant BF. Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry*. 2005; 66(5):564–574. [PubMed: 15889941]
- Pokorny A, Miller B, Kaplan H. The brief MAST: A shortened version of the Michigan Alcoholism Screening Test. *American Journal of Psychiatry*. 1972; 129(3):342–45. [PubMed: 5053717]
- Potenza MN, Kosten TR, Rounsaville BJ. Pathological gambling. *Journal of the American Medical Association*. 2001; 286:141–44. [PubMed: 11448261]

- Rugle, L. The Treatment of Problem and Pathological Gambling. Sacramento: California Office of Problem Gambling; 2004.
- Sartor CE, Scherrer JF, Shah KR, Xian H, Volberg R, Eisen SA. Course of pathological gambling symptoms and reliability of the Lifetime Gambling History measure. *Psychiatry Research*. 2007; 152(1):55–61. [PubMed: 17367870]
- Shaffer HJ, Hall MN, Vander Bilt J. Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health*. 1999; 89(9): 1369–1376. [PubMed: 10474555]
- Shapira, NA.; Ferguson, MA.; Frost-Pineda, K.; Gold, MS. Gambling and Problem Gambling Prevalence Among Adults in Florida. Gainesville: University of Florida; 2002.
- Stinchfield R. Reliability, validity, and classification accuracy of a measure of DSM-IV diagnostic criteria for pathological gambling. *American Journal of Psychiatry*. 2003; 160(1):180–182. [PubMed: 12505822]
- Stinchfield, R.; Govoni, R.; Frisch, GR. Screening and assessment instruments. In: Grant, JE.; Potenza, MN., editors. *Pathological gambling: A clinical guide to treatment*. Washington, DC: American Psychiatric Publishing, Inc; 2004. p. 207-231.
- Toce-Gerstein M, Gerstein D. Of time and the chase: Lifetime versus past-year measures of pathological gambling. *Journal of Gambling Issues*. 2004; 10 (<http://www.camh.net/egambling/issue10/index.html>).
- Toce-Gerstein, M.; Gerstein, DR. Questionnaire design: The art of a stylized conversation. In: Smith, G.; Hodgins, DC.; Williams, RJ., editors. *Research and Measurement Issues in Gambling Studies*. San Diego: Elsevier; 2007. p. 55-86.
- Toce-Gerstein M, Gerstein DR, Volberg RA. A hierarchy of gambling disorders in the community. *Addiction*. 2003; 98(12):1661–72. [PubMed: 14651495]
- Volberg, RA. Gambling and Problem Gambling in North Dakota: A Replication Study, 1992 to 2000. Bismarck, ND: Office of the Governor; 2001a.
- Volberg, RA. Changes in Gambling and Problem Gambling in Oregon, 1997 to 2000. Salem, OR: Oregon Gambling Addiction Treatment Foundation; 2001b.
- Volberg, RA. Gambling and Problem Gambling in Nevada. Carson City: Department of Human Resources; 2002.
- Volberg, RA. Gambling and Problem Gambling Among Seniors in Florida. Maitland: Florida Council on Compulsive Gambling; 2003a.
- Volberg, RA. Report to the Arizona Lottery. Phoenix: Arizona Lottery; 2003b. Gambling and Problem Gambling in Arizona.
- Volberg RA, Banks SM. A review of two measures of pathological gambling in the United States. *Journal of Gambling Behavior*. 1990; 6(2):153–163.
- Welte J, Barnes G, Wiczorek W, Tidwell MC, Parker J. Alcohol and gambling pathology among U.S. adults: Prevalence, demographic patterns and comorbidity. *Journal of Studies on Alcohol*. 2001; 62:706–12. [PubMed: 11702810]
- Wickwire EM Jr, Burke RS, Brown SA, Parker JD, May RK. Psychometric evaluation of the National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS). *American Journal of Addiction*. 2008; 17(5):392–95.10.1080/10550490802268934
- Wulfert E, Hartley J, Lee M, Wang N, Franco C, Sodano R. Gambling Screens: Does shortening the time frame affect their psychometric properties? *Journal of Gambling Studies*. 2005; 21(4):521–536. [PubMed: 16311880]
- Xian H, Shah KR, Phillips SM, Scherrer JF, Volberg R, Eisen SA. Association of cognitive distortions with problem and pathological gambling in adult male twins. *Psychiatry Research*. 2008; 160(3): 300–307.10.1016/j.psychres.2007.08.007 [PubMed: 18710784]

Table 1

DSM-IV Criteria and Matched NODS Lifetime Questions

Label	Source	Text
Preoccupation	DSM-IV*	<i>"is preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble)"</i>
	NODS #1	Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about your gambling experiences or planning out future gambling ventures or bets? OR
Tolerance	NODS #2	Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?
	DSM-IV	<i>"needs to gamble with increasing amounts of money in order to achieve the desired excitement"</i>
Withdrawal	NODS #3	Have there ever been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement?
	DSM-IV	<i>"is restless or irritable when attempting to cut down or stop gambling"</i>
	NODS #4	Have you ever tried to stop, cut down, or control your gambling? AND
Loss of Control	NODS #5	On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?
	DSM-IV	<i>"has repeated unsuccessful efforts to control, cut back, or stop gambling"</i>
Escape	NODS #4	Have you ever tried to stop, cut down, or control your gambling? AND
	NODS #6	Have you ever tried <i>but not succeeded</i> in stopping, cutting down, or controlling your gambling? AND
	NODS #7	If so, has this happened three or more times?
Chasing	DSM-IV	<i>"gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)"</i>
	NODS #8	Have you ever gambled as a way to escape from personal problems? OR
	NODS #9	Have you ever gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?
Lying	DSM-IV	<i>"after losing money, often returns another day to get even ("chasing" one's losses)"</i>
	NODS #10	Has there ever been a period when, if you lost money gambling one day, you would return another day to get even?
	DSM-IV	<i>"lies to family members, therapist, or others to conceal the extent of involvement with gambling"</i>
	NODS #11	Have you ever lied to family members, friends, or others about how much you gamble or how much money you lost on gambling? AND
	NODS #12	If so, has this happened three or more times?

Label	Source	Text
Illegal Acts	<i>DSM-IV</i>	<i>“has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling”</i>
	NODS #13	Have you ever written a bad check or taken money that didn't belong to you from family members or anyone else in order to pay for your gambling?
Risked Relationships	<i>DSM-IV</i>	<i>“has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling”</i>
	NODS #14	Has your gambling ever caused serious or repeated problems in your relationships with any of your family members or friends? OR
	NODS #15	Has your gambling caused you any problems in school, such as missing classes or days of school or your grades dropping? OR
	NODS #16	Has your gambling ever caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity?
Bailout	<i>DSM-IV</i>	<i>“relies on others to provide money to relieve a desperate financial situation caused by gambling”</i>
	NODS #17	Have you ever needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling?.

* APA, 1994: 618

NODS questions with outlining comprise the NODS-CLiP.

Table 2

Overview of Surveys(in chronological order)

Survey	Field Dates	Sampling Strategy	Total Sample	NODS Sample
GIBS RDD	Sept–Dec 1998	Random-digit dial	2,417	907
GIBS Patron	Nov 1998–Jan 99	Random intercept	530	520
Oregon	Oct–Dec 2000	Introductory screen: all < 35; subsample 35+	1,500	1,193
North Dakota	Aug–Oct 2000	Two-phase probability Screened all; 1/4 full interview	5,002	1,609
Nevada	Oct 2000–Mar 01	Two-phase probability Screened all; 1/4 full interview	2,217	708
Florida	Oct–Dec 2001	Random-digit-dial	1,504	1,314
Florida Seniors	Oct–Nov 2002	Quotas: gender, age, ethnicity	1,260	1,024
Arizona	Oct 2002–Jan 03	Only if gambled 5+ times. Quotas: gender, ethnicity	2,750	1,592
TOTAL			17,180	8,867

Table 3

Performance of the NODS-CLiP Items

	Low Risk (0)	At Risk (1-2)	Problem (3-4)	Pathological (5+)	Total
TOTAL N	7,393	1,134	190	150	8,867
% of sample	83%	13%	2%	2%	100%
N captured by CLiP	351	485	178	149	1,163
% captured	5%	43%	94%	99%	13%

TABLE 4**The revised NODS with CLiP**

For each question, circle YES or NO, taking care to *not* mark questions you are instructed to skip. When complete, check the corresponding box in the right-hand margin for all questions that are marked YES, ignoring responses that do not have a corresponding box. Add up the number of checked boxes to determine the score.

A score of 1 or 2 means that results are consistent with a mild but subclinical risk for gambling problems. A score of 3 or 4 indicates results are consistent with moderate but subclinical gambling problems. A score of 5

or higher means that results are consistent with a likely diagnosis of pathological gambling. The highest score possible is 10.

<p>1. Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about your gambling experiences, or planning out future gambling ventures or bets?</p> <p>YES SKIP TO ITEM 3</p> <p>NO GO TO ITEM 2</p>	<p>Q1</p> <p><input type="checkbox"/></p>
<p>2. Have there ever been periods lasting two weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?</p> <p>YES</p> <p>NO</p>	<p>Q2</p> <p><input type="checkbox"/></p>
<p>3. Have you ever lied to family members, friends, or others about how much you gamble or how much money you lost on gambling?</p> <p>YES GO TO ITEM 4</p>	

<p>NO SKIP TO ITEM 5</p>		
<p>4. If so, has this happened three or more times?</p> <p>YES</p> <p>NO</p>	<p>Q4</p> <p><input type="checkbox"/></p>	
<p>5. Have you ever tried to stop, cut down, or control your gambling?</p> <p>YES GO TO ITEM 6</p> <p>NO IF RESPONDENT SAID YES TO ITEM 1 OR ITEM 3, CONTINUE TO ITEM 9. OTHERWISE, END QUESTIONNAIRE</p>		
<p>6. On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?</p> <p>YES</p> <p>NO</p>	<p>Q6</p> <p><input type="checkbox"/></p>	
<p>7. Have you ever tried <i>but not succeeded</i> in stopping, cutting down, or controlling your gambling? <small><i>J Gamb/ Stud. Author manuscript; available in PMC 2013 June 03.</i></small></p> <p>YES</p> <p>NO</p>		
<p>8. Has this happened three or more times?</p>		<p>Q8</p>