Journal of Gambling Studies Vol. 16, No. 2/3, 2000

Prevalence Estimates of Adolescent Gambling: A Comparison of the SOGS-RA, DSM-IV-J, and the GA 20 Questions

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Concerns over the rising prevalence of adolescent gambling problems have become more commonplace. A recent meta analysis of studies examining adolescent prevalence rates by Shaffer and Hall (1996) has suggested that between 77–83% of adolescents are engaging in some form of gambling behavior with between 9.9% and 14.2% of youth remaining at risk for a serious gambling problem. Their results further suggest that between 4.4% and 7.4% of adolescents exhibit serious adverse gambling related problems and/or pathological gambling behavior. Comparisons of studies are often difficult due to the use of alternative measures, differing classification schemes, and nomenclature. The present study examined the gambling behaviors of 980 adolescents who were administered three screening measures used with adolescents; the SOGS-RA, DSM- IV-J, and the GA 20 Questions. The DSM-IV-J was found to be the most conservative measure identifying 3.4% of the population as problem/pathological gamblers while the SOGS-GA identified 5.3% and the GA 20 Questions identified 6% of youth as experiencing serious gambling problems. The degree of concordance amongst the measures, gender differences, and classification systems are discussed.

KEY WORDS: Gambling screens; assessment; instruments.

This research was partially supported by a grant from Loto-Québec. The authors would like to thank the administration, staff, and students at the Champlain College, John Abbott College, Dawson College, and Marianappolis College for their participation and cooperation.

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1050-5350/00/0900-0227$18.00/0

Concomitant with the proliferation of gambling opportunities and venues throughout the world, there has been a renewed interest in the social, economic and psychological costs associated with problem gamblers. While disordered and pathological gambling has been primarily thought of as an adult problem, there have been increased research efforts that has begun to examine the prevalence and underlying factors associated with problem gambling among adolescents (e.g., Derevensky & Gupta, in press; Derevensky, Gupta & Della-Cioppa, 1996; Fisher, 1992; Govoni, Rupcich & Frisch, 1996; Griffiths, 1995; Gupta & Derevensky, 1998a, 1998b; Ladouceur & Dubé, 1994; Ladouceur, Dubé, & Bujold, 1994; National Gambling Impact Study Commission, 1999; National Opinion Research Center (NORC), 1999; National Research Council, 1999; Stinchfield & Winters, 1998; Stinchfield, Cassuto, Winters & Latimer, 1997; Volberg, 1998; Wiebe, 1999; Wynne, Smith, & Jacobs, 1996).

There is little doubt that gambling and wagering remain a very popular activity amongst both children and adolescents. Large scale prevalence studies in the United States, Canada, England, Europe, and Australia all confirm the high prevalence rates of gambling among youth. In particular, estimates are that between 4.4% and 7.4% of adolescents exhibit seriously adverse patterns of compulsive or pathological gambling with another 9.9% to 14.2% remaining at-risk for either developing or returning to a serious gambling problem (Shaffer & Hall, 1996). Differential patterns of gambling behavior and gambling preferences for adolescents as well as their correlates have been described elsewhere (see Derevensky & Gupta, in press; Gupta & Derevensky, 1998a; NORC, 1999).

An alarmingly high percentage of children and adolescents have reported engaging in gambling activities. The fact that gambling rates amongst children and adolescents is growing at an unprecedented rate should come as little surprise. Jacobs (2000, in this issue), estimates that based upon prevalence rates in the United States and Canada more than 15.3 million youth (age12–17) have been gambling with or without parental permission, with approximately 2.2 million youth experiencing severe gambling related problems. In a recent study, Gupta and Derevensky (1998a) found 80.2% of adolescents' age 12–17 reporting having gambled during the previous 12 months, with 35.1% admitting gambling at least once per week. The data further revealed that while 55% of adolescents were casual or recreational

gamblers, 13% reported having some gambling related problems, and 4%–6% had a serious problem. Similar prevalence rates for overall gambling involvement have been reported in the NORC (1999) study. Their review of the literature indicated that approximately two thirds of youth age 16–17 reported gambling during the past year. The NRC (1999) analysis of existing studies revealed that estimates of youth gambling during the past year ranged from 52% to 89% with the median value being 73%. For individuals with pathological gambling problems estimates ranged from 0.3% to 9.5%, with a median of 6.1%.

Differences in prevalence rates of problem gambling and pathological gambling may be related to the sampling procedure employed (e.g., telephone interview vs. school survey), the types of instruments used (e.g., SOGS-RA, DSM-IV-J, GA20, MAGS) and cut-off criteria established, age of sample, nomenclature, the social setting, and adolescent's accessibility to both legal and illegal gambling venues.

Our basic understanding about the nature of pathological gambling is continuously evolving (Volberg, 1994) with differences between diagnostic criterion established in the DSM-III (American Psychiatric Association, 1980), DSMIII-R (American Psychiatric Association, 1987), and DSM-IV (American Psychiatric Association, 1994) clearly denoting changes in our conceptualization of adult pathological gambling. Debates about appropriate criteria and the concerns for validity and reliability of screens as measures of pathological gambling have been reiterated amongst researchers and clinicians and have fueled research projects designed to address these questions; a central theme concerned with the development of a Canadian instrument to assess adult problem gambling by the Inter-Provincial Task Force on Problem Gambling (Ferris, Wynne & Single, 1999). General survey instruments, in general, have received serious criticism (Ferris et al., 1999; Volberg, 1994; Volberg & Steadman, 1992). The commonality within existing instruments and measures has focused upon behavioral indicators of problem playing, the emotional and psychological correlates associated with problem playing, the adverse consequences of excessive playing, and the economic and sociological aspects directly associated with excessive playing behavior (see Ferris et al., 1999 for a review of adult instruments).

The issue of nomenclature with respect to disordered gambling and instrumentation has recently received attention (for a historical treatise of this issue the reader is referred to the NORC [1999], NRC

[1999], and the Canadian Centre for Substance Abuse [Ferris et al., 1999] reports). Independent of perspective, there remains considerable concern and interest amongst researchers, clinicians and policy makers toward developing some uniformity in the nomenclature, definition of disordered gambling, and the development of a new *gold standard;* a standardized instrument that would be accepted as the instrument to be used in psychiatric, psychological, and sociological gambling research and treatment. Nevertheless, it is important to note that an accepted *screening inventory* may not be appropriate as a *diagnostic instrument* or may require different scoring criteria. While these measures may share similar items, their purpose is different.

Studies of adults have employed a number of methods to measure problem gambling and have produced wide estimates of problem gambling (Govoni et al., 1996; Shaffer & Hall, 1996). Prevalence rates of adult pathological gambling have been established through the use of a variety of measures, the most frequently used measure being the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987). Research based upon the SOGS represents the largest existing database on problem and pathological gambling in the general population. The SOGS was developed and validated on the basis of responses to issues faced by Gamblers Anonymous members and individuals entering inpatient treatment centers for alcohol abuse (Volberg & Banks, 1990). While it was validated against the DSM-III criteria (American Psychiatric Association, 1980), the SOGS was never tested for reliability and validity on the general population and has been criticized for its failure to correct for false-positives, to account for changes in the diagnostic criteria in the DSM-III-R (American Psychiatric Association, 1987) and DSM-IV (American Psychiatric Association, 1994), and the notion that pathological gambling is irreversible given that all the items are framed with respect to lifetime behaviors (Dickerson, 1993).

INSTRUMENTS USED TO ASSESS YOUTH PROBLEM GAMBLING

While gambling research and treatment have made considerable progress in the last decade, new instruments to establish problem and pathological gambling rates have been slow to emerge. Due to the

growing awareness of problems amongst juveniles, expanded efforts have resulted in the development of screens and diagnostic tools exclusively for identifying problematic gambling in adolescents, including the SOGS-RA (Winters, Stinchfield & Fulkerson, 1993), DSM-IV-J (Fisher, 1992), and the MAGS (Shaffer, LaBrie, Scanlan & Cummings, 1994). Each instrument is reported to have its advantages and disadvantages, with considerable overlap between measures. Similar to adult instruments (e.g. SOGS, DSM-IV, NODS), the notion of deception (lying), stealing money to support gambling, preoccupation, and chasing losses are common amongst instruments used for adolescents.

South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA)

A revised version of the SOGS, the SOGS-RA (Winters et al., 1993) was developed in order to more accurately assess adolescent gambling problems. This 16-item scale (with four items being omitted for scoring) assesses gambling behavior and gambling related problems during the past 12 months and maintains a single dimension of problem gambling. Items from the original SOGS were reworded to make it more age appropriate and the scoring scheme was adjusted. In particular, the screen emphasized the frequency of gambling behavior and the behavioral indices often accompanied by problem gambling in contrast to the heavy emphasis on money. Winters et al. (1993) report satisfactory reliability (.80) and validity measures (adequate construct validity as well as discriminating between regular and non-regular gamblers). However, Ferris et al. (1999) note that the instrument has not been adequately tested with adolescent females given the low rate of female problem gamblers in the original sample (a problem common to many adolescent instruments).

A number of studies based on the SOGS and SOGS-RA have been carried out in high schools in Connecticut, Louisiana, New Jersey, New York and Quebec (Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Steinberg, 1997; Volberg, 1998; Westphal, Rush & Stevens, 1997; Wynne, Smith & Jacobs, 1996). More recently, Ladouceur, Bouchard, Rhéaume, Jacques, Ferland, Leblond, and Walker (2000) questioned the validity of the SOGS as they contend that the high rates of prevalence by youth and adults are a result of individuals misunderstanding the intent of the items.

Gamblers Anonymous Twenty Questions (GA20)

A widely utilized screen for pathological gambling with adults, the Gamblers Anonymous Twenty Questions (GA20) has also been used with adolescents. This instrument, developed by Gamblers Anonymous, was based upon the difficulties experienced by their members. It was designed to help problem gamblers diagnose themselves and decide whether they required help. The twenty items identify particular situations and behaviors that are typical of pathological gamblers. The questions address the financial correlates of continued gambling, the personal consequences of excessive gambling (e.g., difficulty sleeping, remorse for excessive gambling, decreased ambition), and social correlates associated with excessive behavior (difficult home life, arguments associated with gambling). An individual endorsing seven of the twenty items is considered to be a pathological or compulsive gambler (Custer & Custer, 1978). This measure remains interesting as it was developed by compulsive gamblers personally afflicted by the addiction it was designed to assess, giving it an immediate face validity (for that particular profile of gambler). However, some of the items that constitute this screen are very different from the diagnostic criteria outlined in the more recent DSM-IV (American Psychiatric Association, 1994).

Diagnostic Statistical Manual-IV Adapted for Juveniles (DSM-IV-J)

A revised version of the DSM-IV criteria, the DSM-IV-J (Fisher, 1992), has been developed for children and adolescents (a more recent version is described by Fisher (2000, in this issue). The original DSM-IV-J scale consists of 12 items and responses are given in "yes" or "no" format. The DSM-IV-J was modeled very closely on the adult version (DSM-IV criteria for pathological gambling), with several significant adaptations. One major difference pertains to where individuals acquire their money. For example, it refers to supporting their gambling from money allocated for "school lunch" and "bus transportation." With respect to committing crimes, it specifies theft from home, theft from outside the family, and shoplifting, rather than the adult examples of forgery, fraud, and embezzlement. The DSM-IV-J comprises nine dimensions of pathological gambling: progression and preoccupation, tolerance, withdrawal and loss of control, escape, chasing,

lies and deception, illegal acts, family and academic disruptions, and financial bailout. Fisher (1992) found, with a population of fruit machine (slot machine) players, that meeting four of the twelve criteria was sufficient to classify them as "probable pathological gamblers," and that this revised version served as an effective discriminator of pathological gambling in children and adolescents.

Massachusetts Adolescent Gambling Screen (MAGS)

The Massachusetts Adolescent Gambling Screen (MAGS) was developed by Shaffer et al. (1994) to assess the prevalence of problem and pathological gambling amongst a general population of adolescents. It is described as a brief clinical screening instrument that yields indices of pathological and non-pathological gambling. The MAGS incorporates the DSM-IV criteria for pathological gambling into a set of survey questions. The MAGS in conjunction with the DSM-IV criteria is a 26-item scale, including two subscales, designed to provide clinicians and researchers with a method of identifying individuals with gambling difficulties. The scale includes a DSM-IV subscale which yielded a Chronbach alpha of .87 while the MAGS subscale yielded an alpha of .83. Validity data and discriminant analyses were effective predictors of pathological gambling. This screen has been tested with 856 high school students, reportedly successfully classifying 96% of the adolescent gamblers as either pathological gamblers, in transition, or non-pathological gamblers. The scale measures the biological, psychological, and social problems found amongst youth with excessive gambling problems. The authors conclude the MAGS 7 to be a valid, efficient and quick screen that should be used to identify individuals who are at risk for pathological gambling and as such is a useful clinical instrument. Once identified as a probable pathological gambler on the MAGS, further diagnostic in-treatment clinical assessments were recommended to provide more detailed information about specific gambling behaviors.

Serious concerns still remain as to whether or not studies reporting prevalence data using different measures are comparable. While several of these prevalence studies have attempted to make available instruments more appropriate for adolescents, comparisons between multiple instruments have rarely been done. Comparability of results for adolescents with serious problems remains difficult at best. The

present study seeks to address this issue by incorporating three commonly used measures; the DSM-IV-J, the SOGS-RA, and the GA 20 Questions in order to measure the comparability between these instruments. Due to time constraints and its limited use at the time of conception of the study the MAGS was not used.

METHOD

Participants

The study included 980 youth, 599 females and 381 males, average age 18.5 years (s.d. = 1.69) attending four CEGEPs (Junior College) representing students in grades 12 and 13 in the greater Montreal region. The CEGEP system is a post-secondary educational institution that includes trade schools, academic programs, and is a mandatory preparation for Quebec Universities. Participants were recruited from all sectors and areas of specializations within the CEGEP in order to minimize any biases.

Instruments

DSM-IV-J (Fisher, 1992): A revised version of the DSM-IV criteria, the DSM-IV-J was developed for children and adolescents (see Fisher, 2000 in this issue for a more recent revision). The DSM-IV-J comprises nine dimensions of pathological gambling, these being progression and preoccupation, tolerance, withdrawal and loss of control, escape, chasing, lies and deception, illegal acts, family and academic disruptions, and financial bailout. A score of ≥ 4 is indicative of a serious gambling problem.

SOGS-RA (Winters et al., 1993): This instrument was originally modified from the SOGS (South Oaks Gambling Screen) (Lesieur & Blume, 1987), the most widely used screen for adult gambling problems. This scale, designed for youth, consists of 12 questions examining gambling behaviors paralleling questions in the SOGS. A score of four or more is considered to represent probable/pathological gambling. The scale's internal constancy reliability estimate (.80) was found to be acceptable and a principal component factor analysis provided evidence of a common dimension. Validity evaluations found the

SOGS-RA scale scores significantly discriminated between groups based upon gambling frequency and amount of money expended.

Gamblers Anonymous Twenty Questions (GA20) was developed by Gamblers Anonymous, based upon the difficulties experienced by their members in order to provide a measure of self-assessment with respect to the severity of gambling problems. An individual endorsing seven of the twenty items is considered to be a pathological gambler (Custer & Custer, 1978). The questions, when viewed as 20 aspects of the compulsive gamblers "predicament," depict the cycle of negative and positive reinforcement for gambling behavior. However, many of the items are significantly different from the diagnostic criteria outlined in the DSM-IV (American Psychiatric Association, 1994). While primarily used as an adult screening instrument, it has been used to assess youth gambling problems by a number of researchers.

Procedure

Participants were given a questionnaire during regular class time assessing their past and present gambling history, frequency of gambling behavior, types of gambling activities in which they engaged, and amounts of money wagered. The questionnaire also included the DSM-IV-J, SOGS-RA, and GA20 with instruments presented in a random order. The total time required for completion of all instruments was approximately 40 minutes.

RESULTS

Prevalence of Gambling

Of the total sample, 71.2% of participants reported having gambled during the past 12 months, 56.6% were occasional gamblers (less than once per week), and 14.6% were considered regular gamblers (gambling a minimum of once per week). More males (84%) reported gambling than females (64%). As well, independent of screening measure, more males were classified as probable/pathological gamblers.

Problematic Gambling Behavior

Depending upon the instrument used, differences in the prevalence rates of problem and probable/pathological gambling were

found. The DSM-IV-J identified 3.4% (N = 33) of the population (4.7% of those reporting gambling) as probable/pathological gamblers, the SOGS-RA identified 5.3% (N = 52) of the population (7.4% of those reporting gambling) as probable/ pathological gamblers, and the GA20 identified 6% (N = 59) of the population (8.4% of those reporting gambling) as probable/pathological gamblers. A comparison of gamblers on each of the screening instruments is presented in Table 1. Using the established criteria, for each instrument, the results reveal that the DSM-IV-J was the most conservative measure. It is interesting to note that the SOGS-RA actually identifies the largest number of males (11%) and the GA20 the largest number of females (3.5%) as probable/pathological gamblers. Nevertheless, it is important to note there were no statistically significant differences between the three measures for female probable/pathological gamblers (likely due to their low base rate).

The inter-correlation matrix for the three instruments is found in Table 2. Overall, the correlations are in the moderate range (.61–.68), with correlations being much higher for males (range between .75–.84) than females (range between .31–.50), an expected finding given the lower variability of severity of female gambling problems. Of considerable concern were the accuracy rates between instruments in their ability to identify probable pathological adolescent gamblers. Given the DSM-IV-J was found to identify the fewest probable/pathological gamblers; the concordance and accuracy rates (Table 3) were computed using this instrument as the standard. It is important to note that at the present time there exists no adequate criterion measure and that the selection of the DSM-IV-J as the standard in the present study was selected because of its conservative nature in identifying the fewest probable/pathological gamblers and similarity to the DSM-IV criteria. One can see the high concordance rates for the identification of problem gamblers amongst these instruments. Equally important to note are the relatively small false negative and false positives rates between instruments.

Qualitatively, it is important to understand where differences lie on the various items with respect to items endorsed. If one compares differences between those reporting some gambling-related problems (1–3) on the DSM-IV-J with those experiencing serious problems ($\geq$4), significant differences can be observed (see Table 4). Those adolescents in the probable/pathological group endorse *all* items more

Table 1
A Comparison of Gamblers on the DSM-IV-J, SOGS-RA, and GA 20

Instrument	*Non-Gambler*	*Gambler—No Problems*	*Gambler—Some Problems*	*Probable Pathological*	*N*
DSM-IV-J					
Male	16%	53%	23%	8%	29
Female	36%	57%	6%	<1%	4
Total	28.4%	55.4% (77.3%)*	12.7% (18%)*	3.4% (4.7%)*	33
SOGS-RA					
Male	16%	41%	32%	11%	43
Female	36%	45%	17%	1.5%	9
Total	28.4%	43.7% (61%)*	22.7% (31.6%)*	5.3% (7.4%)*	52
GA 20					
Male	16%	17%	5.7%	10%	38
Female	36%	21%	40%	3.5%	21
Total	28.4%	16.2% (26.5%)*	46.5% (65%)*	6% (8.4%)*	59

Total N = 980.
*Percentage of those reporting gambling.
DSM-IV-J: No Problems = 0; Some Problems = 1–3; Probable Pathological = ≥ 4. SOGS-RA: No Problems = 0; Some Problems = 1–3; Probable Pathological = ≥ 4. GA 20: No Problems = 0; Some Problems = 1–6; Probable Pathological = ≥ 7.

Table 2
Intercorrelation Matrix—Total Sample, Males, Females

	Age	*GA 20*	*SOGS-RA*	*DSM-IV-J*
Total Sample				
Age	1.00	—	—	—
GA 20	−.03	1.00	—	—
SOGS-RA	−.06	.61***	1.00	—
DSM-IV-J	−.04	.68***	.67***	1.00
Males				
Age	1.00	—	—	—
GA 20	−.12*	1.00	—	—
SOGS-RA	−.14*	.78***	1.00	—
DSM-IV-J	−.11**	.75***	.84***	1.00
Females				
Age	1.00	—	—	—
GA 20	.01	1.00	—	—
SOGS-RA	−.03	.35***	1.00	—
DSM-IV-J	.01	.50***	.31***	1.00

*p < .05.
**p < .01.
***p < .001.

Table 3
Accuracy Rate for Predicting Gambling Problems Using the DSM-IV-J as the Standard

	SOGS-RA	*GA 20*	*DSM-IV-J*
SOGS-RA	—	—	—
GA 20	95% TP 2.1% FN 2.9% FP	—	—
DSM-IV-J	97% TP .5% FN 2.4% FP	96% TP .6% FN 3.3% FP	—

TP = True Positive.
FN = False Negative.
FP = False Positive.

Table 4
Percentage of Responses on DSM-IV-J Items Comparing Gamblers with 1–3 Problems and Gamblers with 4+ Problems

DSM-IV-J Items	*1–3 Problems (N = 124)*	*4+ Problems (N = 33)*
Think about gambling all the time	48.4%	90.9%
Spend more and more money on gambling	7.3%	57.6%
Become tense, restless, when trying to cut down	5.6%	60.6%
Gamble as a way of escaping from problems	11.3%	51.5%
Chase losses	24.2%	84.8%
Lie to family and friends about gambling behavior	18.5%	69.7%
Use other money (e.g. lunch money) for gambling	25.8%	60.6%
Taken money from family to gamble without telling them	4.0%	24.2%
Stolen money from outside family to gamble	1.0%	12.1%
Fallen out with family because of gambling behavior	0.0%	21.2%
Skip school more than 5 times to gamble in past year	5.6%	27.3%
Sought help for serious money worry caused by gambling	0.0%	24.2%

frequently, with a gambling preoccupation (thinking about gambling all the time) receiving the highest endorsement (90.9%). Almost half (48%) of adolescents with 1–3 gambling related problems similarly endorse this item. The other most frequently reported items for probable/pathological gamblers centers upon chasing losses (84.8%), lying about gambling activities (69.7%), experiencing problems when trying to refrain or cut down on gambling (60.6%), using money designated for other purposes on gambling (60.6%), spending increasing amounts on gambling (57.6%), and using gambling as a way of escap-

ing problems (51%). The items endorsed by these individuals with serious gambling problems on the SOGS-RA and GA20 are reported in Tables 5 and 6.

The DSM-IV-J and the GA20 each contain unique items. For example, the two most endorsed questions on the DSM-IV-J refer to a preoccupation with gambling, i.e., constantly thinking about gambling and lying about gambling activities, whereas the GA20 does not include similar items. The SOGS-RA similarly does not have items directly assessing preoccupation. In contrast, the GA20 refers to losing track of time while gambling and feeling remorse whereas the DSM-IV-J does not. Furthermore, the GA20 places more emphasis on the financial aspects of a gambling problem than does the DSM-IV-J. This may be a less important aspect for adolescents.

DISCUSSION

With the proliferation of readily accessible gambling opportunities in the community, more and more youth are being exposed to legalized gambling at younger and younger ages, be it through their parents, friends, strangers, or the media (Gupta & Derevensky, 1998a). There is empirical evidence with youth and retrospective studies with adult pathological gamblers that individuals with gambling problems began wagering money as young as 10 years of age (Gupta & Derevensky, 1998a; Wynne et al., 1996).

A direct comparison of the DSM-IV-J, SOGS-RA and the GA 20 Questions revealed a fairly high degree of agreement between measures, with a relatively small classification error. Using the recommended criteria, the DSM-IV-J identified 3.4% of youth, the SOGS-RA identified 5.3%, and the GA20 identified 6.0% of youth as probable/pathological gamblers. From an overall prevalence perspective these differences are not enormous. Nevertheless, independent of instrument or screen, the results further confirm the well-established finding that more youth report experiencing serious gambling problems than adults and adolescent males tend to engage in gambling activities more frequently and have significantly more gambling problems than female adolescents.

The data suggest much greater agreement amongst the instruments for identifying male problem gamblers. The DSM-IV-J identified

Table 5
Percentage of Affirmative Responses for Each Question of the SOGS-RA Endorsed by Identified by Problem and Pathological Gamblers Classified by the DSM-IV-J

Questions on the SOGS-RA	*1–3 Problems (N = 124)*	*4+ Problems (N = 33)*
What is the largest amount of money you have ever gambled in the past 12 months?		
$50–$99	28.6%	5.4%
$100–$199	21.5%	17.9%
$200 and more	50.0%	40.0%
Do you think that either of your parents gamble too much?	7.3%	15.2%
mother	1.6%	3.2%
father	5.7%	9.7%
both mother and father	0%	3.2%
In the past 12 months, how often have you gone back another day to win back the money you lost? (Every time)	8.9%	54.5%
In the past 12 months when you were betting, have you ever told others you were winning money when you really weren't winning?	14.5%	39.4%
Has your betting, in the past 12 months, ever caused any problems for you such as arguments with family and friends, or problems at school or work?	9.7%	51.5%
In the past 12 months, have you ever gambled more than you had planned to?	48.4%	81.8%
In the past 12 months, has anyone criticized your betting or told you that you had a gambling problem, regardless of whether you thought it was true or not?	20.2%	84.8%

Table 5 (*Continued*)

Questions on the SOGS-RA	*1–3 Problems (N = 124)*	*4+ Problems (N = 33)*
In the past 12 months, have you ever felt bad about the amount you bet, or about what happens when you bet money?	44.4%	72.7%
Have you ever felt, in the past 12 months, that you would like to stop betting money but didn't think you could?	8.1%	57.6%
In the past 12 months, have you ever hidden from your family or friends any betting slips, I.O.U.'s, lottery tickets, money that you've won, or other signs of gambling?	12.1%	57.6%
In the past 12 months, have you had money arguments with family or friends that centered on gambling?	4.8%	42.4%
In the past 12 months, have you borrowed money to bet and not paid it back?	2.4%	3.3%
In the past 12 months, have you ever skipped or been absent from school or work due to betting activities?	12.9%	42.4%
Have you ever borrowed or stolen money in order to bet or cover gambling debts in the past 12 months?	3.2%	42.4%

the fewest females while the GA 20 identified the most. The fact that the DSM-IV-J is modeled upon the DSM-IV (the current 'gold standard' in the psychiatric community) adds to its credibility. Clearly, this scale is predicated upon the classic symptomatology of problem and pathological gambling. The constructs of preoccupation, chasing losses, deception, and irritability when not gambling are all symptomatic of both youth and adult problem gambling. These were the highest

Table 6
Percentage of Affirmative Responses for Each Question of the GA20 Endorsed by Identified by Problem and Pathological Gamblers Classified by the DSM-IV-J

Questions on the GA Twenty Questions	*1–3 Problems (N = 124)*	*4+ Problems (N = 33)*
Do you ever gamble longer than you planned?	51.2%	84.8%
After a win, do you have a strong urge to return and win more?	56.9%	81.8%
After losing do you feel you must return as soon as possible and win back your losses?	29.3%	75.8%
Do you ever feel remorse after gambling?	55.3%	75.8%
Do you often gamble until your last dollar is gone?	32.5%	63.6%
Do you have an urge to celebrate good fortune by a few hours of gambling?	27.6%	60.6%
Do you ever borrow to finance your gambling?	11.5%	54.5%
Do you ever gamble to escape worry or trouble?	19.5%	45.5%
Do arguments, disappointments, or frustrations create within you an urge to gamble?	8.9%	42.4%
Are you reluctant to use "gambling money" for normal expenditures?	20.3%	42.4%
Does gambling affect your reputation?	12.2%	39.4%
Do you lose time from school or work due to gambling?	17.1%	39.4%
Does gambling cause a decrease in your ambition (motivation) or efficiency?	4.9%	33.3%
Does gambling cause you to have difficulty sleeping?	3.3%	33.3%
Do you ever consider self-destruction as a result of your gambling?	6.5%	33.3%

Table 6 (*Continued*)

Questions on the GA Twenty Questions	*1–3 Problems (N = 124)*	*4+ Problems (N = 33)*
Does gambling make your home life unhappy?	4.1%	24.2%
Do you ever commit or consider committing illegal acts to finance your gambling?	4.9%	21.2%
Does gambling make you careless about the welfare of your family?	2.4%	15.2%
Do you ever sell anything to finance gambling?	3.3%	15.2%
Do you ever gamble to get money with which to pay debts or to otherwise solve financial problems?	22.8%	51.5%

endorsed items on the DSM-IV-J for those youth identified with serious gambling problems.

The fact that the DSM-IV-J identified less than 1% of female problem gamblers, the SOGS-RA identified 1.5% of female problem gamblers, and the GA20 identified 3.5% of females as problem gamblers, while the differences are not statistically significant the findings are of interest. It has been well established that there are generally more male than female problem gamblers and that the types of activities engaged in by females also differ. While males reported engaging in all types of gambling activities more often than females, overall the greatest differences lie in frequency of wagering on sports events and skill-oriented activities (e.g., pool, basketball, etc.). Further research and analyses are necessary to help delineate those characteristics that may differentiate between male and female youth problem gamblers (e.g. those that gamble for arousal vs. escape). The fact that there well may be qualitatively different types of problem gamblers (see Blaszczynski , 2000 for his descriptions of adult problem gamblers), the notion that different criteria may need to be established for males and females, and that researchers and clinicians may ultimately want to develop more sensitive screening instruments for adolescent females needs to be addressed. As well, longitudinal studies designed to track the pro-

gression of those individuals at-risk for the development of a gambling problem as well as those currently identified as having a gambling problem is warranted.

A closer examination of all three scales suggests that the SOGS-RA has items addressing the issue of relationships with parents and friends while the GA20, originally designed for adults, has a greater emphasis on monetary issues. Neither the SOGS-RA nor GA20 includes questions directly addressing a preoccupation with gambling although both assess chasing behaviors. While some may infer that preoccupation and chasing behaviors are synonymous, the latter involves a direct behavioral action while the former is more cognitive in nature. This is unfortunate considering that preoccupation is a primary characteristic common to all addictions (DSM-IV) (APA, 1994) and is consistently found in our clinical population of adolescent problem gamblers (Gupta & Derevensky, 2000, in this issue). (For an interesting treatise of pathological gambling as an addictive behavior the reader is referred to Shaffer, 1987, 1999.) Thus, while there is certainly overlap between instruments in the identification criteria of probable/pathological youth gamblers, the generalizability of the characteristics of the samples still remains questionable.

Which measure more accurately assesses the prevalence rate for youth gambling problems? On a more conceptual level, before answering this question, one needs to address the issue of how youth gambling problems are defined (see Ferris et al., 1999 for a comprehensive review). For the purpose of this discussion the current perspective taken by the American Psychiatric Association (1994) and delineated in DSM-IV is assumed. Pathological gambling is conceptualized as a preoccupation with gambling, a lack of adequate control over the individual's behavior, and an inability to play moderately or to stop playing. It is accompanied by guilt associated with the gambling behavior, withdrawal symptoms are present when trying to curtail or terminate the behavior, and difficulties in social relations as a consequence of excessive gambling are common. Rosenthal (1992) provided a more detailed definition in which he delineated the criteria to include a progressive disorder (not single trial learning), continuous and/or periodic episodes of a loss of control over gambling, a preoccupation, irrational thinking, and a continuation of the behavior in spite of repeated losses and negative adverse consequences. These characteristics are present in both adults and youth problem gamblers who present

themselves for treatment. Whether one uses the terminology of "problem," "pathological," "compulsive," "Level III," or "probable/pathological" gambler, the clinical symptomatology is consistent. These individuals report having an inability to control their gambling behavior and have significant personal, familial, peer and financial problems as a consequence of their inability to curtail or stop gambling (see Gupta & Derevensky, 2000, in this issue).

It is important to note that the instruments compared are in fact screening tools and not necessarily the sought after gold standard instrument. This distinction is quite important. While the DSM-IV-J was selected as the standard for use in the present study due to its conservative nature and similarity to the DSM-IV, a valid argument could be made to use the instrument that identified the largest population if one is only using this as a screening tool. An alternate perspective would be to use any of the instruments and decrease the cut-off criterion for establishing a potential problem. Researchers and clinicians need to establish whether to strive to develop an instrument either for the purpose of identification of prevalence rates of problematic gambling in a general population or whether it should also have clinical utility. While the two purposes may not be mutually exclusive there may be some fundamental differences. The use of screening devices may in fact be necessary to help establish prevalence rates which become essential markers to influence funding of prevention programs and the development of responsible social policy. Nevertheless, the development of effective screening tools may help identify youth at-risk for significant problems. The clinical usefulness of such instruments should not be overlooked. Further collaborative efforts between the research and treatment communities need to address this issue. A plausible solution could simply be to use the DSM-IV for adults and the DSM-IV-J for adolescents since the DSM-IV criteria are easily converted into question format (see Shaffer et al., 1994). This would seem reasonable if, and only if, we accept the current definition and behavioral characteristics associated with problem gambling.

The reluctance in using the DSM-IV-J could arise from its tendency to be the most conservative measure and that the items are discrete and not continuous (see Fisher, 2000, this issue for the modified version), thus failing to identify those who would benefit from prevention and/or intervention efforts. When screening individuals for such prevention/intervention programs, the diagnostic criteria

could be reduced to include those *at-risk,* while keeping the more stringent criteria for establishing pathological gambling prevalence rates. The MAGS gambling screen (Shaffer et al., 1994) is reported to be a very effective screening measure for pathological gambling amongst adolescents, showing a 96% agreement with the DSM-IV classification system and having similar items. The MAGS therefore may be the measure of choice for future research efforts with adolescents although it seems unclear as to the benefits of selecting the MAGS, which is modeled so closely upon the DSM-IV, instead of using the DSM-IV criteria itself. At the time of the conceptualization of the current study, the MAGS was not widely used and thus was not included in this comparison. It would have been interesting to compare the MAGS to the DSM-IV-J, the SOGS-RA as well as the GA20. While this study did not compare the MAGS with other screens, a study by Volberg (1998) examining adolescent prevalence rates of problem gambling in New York State found the MAGS to be a more conservative measure than the SOGS-RA. Ideally, a research study comparing all the measures in both the general and clinical populations is recommended.

The National Research Council's (1999) report concluded that "the most serious limitation of existing prevalence research is that the volume and scope of studies are not sufficient to provide solid estimates for the national and regional prevalence of pathological and problem gamblers, or to provide estimates of changes in prevalence associated with expanded gambling opportunities and other recent secular trends" (p. 65). While national and regional estimates may provide useful information for social policy initiatives, the proliferation of gaming venues continues at an unprecedented rate, with a growing number adolescents with gambling problems being acknowledged.

Societal and governmental acceptance of gambling during the past century can best be described as being on a pendulum (see Rose, 1991 for a complete historical perspective). Yet, it is unlikely that the pendulum will swing backwards as more and more states, provinces and countries become addicted to the vast revenues generated from legalized gaming. Nevertheless, knowledge of prevalence rates of youth gambling problems remains important from a social cost and public health perspective. Having a "gold standard" measure which clinicians and treatment providers find useful, with high reliability and validity, has the advantage of not only tracking the incidence of prob-

lem and pathological gaming but also of determining the long-term effectiveness of education, prevention, and treatment programs. It is important to note that once a new standard has gained acceptability longitudinal and prospective studies will be necessary to determine the effects of a life-time of exposure to multiple venues for legalized gambling. As some researchers have long argued, the examination of prevalence rates for problem and pathological gambling must also account for the cohort effect (Gupta & Derevensky, 1998a; Mok & Habra, 1991). There appears to be ample research suggesting that young children report gambling in their home with peers, siblings, and parents (Gupta & Derevensky, 1997), that by the time children are 13 years old less than 10% fear getting caught gambling (Derevensky & Gupta, 1997), and that adolescent pathological gamblers start gambling, on average, at age 10.9 and non-pathological gamblers at age 11.5 (Gupta & Derevensky, 1998a).

Like adult problem gamblers, the range of money spent gambling by youth varies considerably and should not be the overriding determinant of a gambling problem. Nevertheless, an analysis of the data clearly points to the issues of preoccupation, chasing losses, lying to family members and peers, and a need to escalate their wagers as symptomatic of a significant problem. The underlying reasons which prompt their gambling behavior (see Gupta & Derevensky 1998a, 1998b) and their treatment implications (see Gupta & Derevensky, 2000, in this issue) have only begun to be addressed.

Youth with severe gambling problems is a relatively new phenomenon with which clinicians, researchers, parents, teachers, and school administrators must contend. The fact Shaffer and Hall's (1996) meta-analysis suggests that between 10–14% of youth experience some gambling related problems and are susceptible to becoming problem gamblers is of significant concern. The present research found that between 12.7%–46.5% exhibited some self-reported gambling associated problems. While we don't know if these youth are in transition, moving from a level of pathological problem to becoming more social gamblers, it is likely that some are caught in the downward spiral moving from social to probable/pathological gambling behaviors. This problem remains an important public health policy issue (Korn & Shaffer, 1999; Wynne, 1997).

There is little doubt that an effective screening tool designed to measure the prevalence of youth problem gambling and to help iden-

tify individuals at-risk for developing a problem must include behavioral items describing not only the frequency and severity of the problem but their natural psychological, sociological, and financial consequences. Such a measure must be age-appropriate and incorporate the contextual environment within which the identified population resides. Research in this domain must continue and social policy reform must be advocated until effective awareness, prevention, and treatment programs are an integral part of all communities. We call upon gambling researchers and treatment providers to work together to help address these problems and to develop a psychometrically and clinically sound instrument for the identification of youth problem gambling.

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Received November 1999; accepted March 2000.