

vious versions, I continue to have many strong reservations with this legislation."<sup>45</sup>

### CONCLUSION

In both chambers, there were no recorded votes, as the bills passed by unanimous consent. The National Gambling Impact Study Commission Act, signed by the President on August 3, 1996, required that all members be appointed "not later than 60 days after the date of enactment of this Act."<sup>46</sup> Only two appointments were announced by that deadline.<sup>47</sup> Regardless of the eventual makeup of the Commission, the legislative history of this bill shows that gaming is still a very controversial topic. The gaming industry has not, and may not be able, to convince critics that it is a legitimate industry free of problems. The subpoena power of the Commission is a reminder of the suspicion still accorded to individuals and businesses involved in gaming. The findings of the Commission may help to shape the outcome of this important public policy debate.

<sup>45</sup>Jd. 118044. (statement of Rep. Ensign).

<sup>46</sup>P.L. 104-169, Sec. 2 (5)(b)(4).

<sup>47</sup>Dr. Paul Moore, a retired radiologist, was appointed by Sen. Lott on September 4, 1996. Dr. James Dolson, President, Focus on the Family, was named by Sen. Lott at the suggestion of Sen. Coats on September 10, 1996.

## Adolescent Gambling Behavior: A Prevalence Study and Examination of the Correlates Associated with Problem Gambling

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Eight-hundred and seventeen adolescent high school students in the Montreal region completed the DSM-IV-J gambling screen along with a questionnaire devised by the authors inquiring about their gambling behavior, including items assessing the types of activities in which they engage, frequency of involvement, reasons for gambling, and their cognitive perceptions of gambling activities. The results indicate that, in general, 80.2% of students reported having gambled during the previous year, with 35.1% gambling a minimum of once per week. Adolescents reported participating in gambling behavior more often than any other addictive behavior, including cigarette smoking, alcohol consumption, and illicit drug use. The mean age of onset of gambling behavior for the sample was 11.5 years. The rate of pathological gambling was 4.7% as measured by the DSM-IV-J. Pathological gamblers were more likely to have parents with gambling problems and to be engaging in illegal activities than non-pathological gamblers. Gender differences were evident, with males engaging in gambling activities more than females. Differences in game preferences were found, with males more attracted to sports lottery tickets and sports pool betting and females more attracted to lottery tickets and bingo. Gambling awareness and prevention issues are addressed.

### REVIEW OF THE LITERATURE

Studies have confirmed that rates of pathological gambling are higher amongst the adolescent population than amongst adults (De-

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reventsky & Gupta, 1996; Lesieur & Klein, 1987; Jacobs, 1987; Shaffer & Hall, 1996; Stinchfield, Cassuto, Winters, & Latimer, 1997; Wynne, Smith, & Jacobs, 1996). Today's adolescents are the first to live their entire lives in a society of legalized gambling. As the gambling industry has permeated the entertainment industry at a rapid pace, the availability of gambling activities has reached an unprecedented level. No longer does one have to visit a casino or race track to place a bet. Gambling opportunities are at local corner stores, restaurants and bars. Lotteries, video lottery terminals (VLTs) and sports betting have become part of everyday life for many people. Although it remains illegal for minors to gamble on most government-regulated activities, the willingness of gambling operators to turn a blind eye to juvenile gambling, given the large revenues generated, results in children and adolescents being very much a part of the gambling industry.

Teenage gamblers present an evident problem in today's society. Severe gambling problems have been shown to originate during the pre-teen and adolescent years or younger (e.g., Custer, 1982; Griffiths, 1990; Livingston, 1974; Wynne et al., 1996). Results generally suggest that 3.5%–8% of adolescents are pathological gamblers (Derevensky & Gupta, 1996; Fisher, 1992; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Shaffer & Hall, 1996; Winters & Stinchfield, 1993; Wynne et al., 1996), and another 10%–14% are at-risk for the development of severe gambling problems (Shaffer & Hall, 1996), while 24–40% engage in some gambling behavior weekly (Huxley & Carrol, 1992; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987). It is still unclear whether the percentage of adolescent pathological gamblers is rising over time, since different studies have employed different assessment instruments in estimating prevalence. The fact that adolescent gambling is a relatively recent area of investigation coupled with the small number of replication and follow-up studies precludes a definitive answer. However, a recent survey of adolescent gambling conducted in Alberta, Canada, found that 67% of respondents gambled in the preceding year, with 8% meeting the criteria for pathological gambling, and an additional 15% being at-risk for the development of an addiction to gambling (Wynne et al., 1996). This identified rate of pathological gambling amongst adolescents is among the highest to date, possibly suggesting an increasing prevalence of young people afflicted with this problem. The problem gamblers in the Alberta study reported starting to gamble before the age of ten, and usually in the presence

of family members. While the number of gambling venues and opportunities are increasing, there remains insufficient empirical support at this time showing that the rates of gambling involvement amongst adolescents are rising. A large scale survey of high school students in Minnesota revealed no increase in gambling rates from 1992 to 1995 (Stinchfield et al., 1997), although older students in grade 12 gambled at slightly higher rates. There remains, however, clear evidence that the prevalence rates for adolescent pathological gamblers is considerably higher than adults (see the reviews by Shaffer & Hall (1996) for prevalence rates of youth gamblers and Ladouceur (1996) and Volberg (1996) for adult prevalence rates).

Engaging in addictive behaviors such as gambling is appealing because they are stimulating and can alleviate painful states, an effect that may be especially alluring during a turbulent time for children and adolescents who have not yet developed healthy, adaptive, coping skills. Of particular concern is the eventual suicide, by some gamblers, to escape from painful realities once an addiction no longer fulfills their needs. A national survey of 500 adult Gamblers Anonymous members revealed that 48% had contemplated suicide and 13% had attempted suicide, and that those with suicidal preoccupation began gambling earlier than non-suicidal gamblers (Frank, Lester, & Wexler, 1991). These findings suggest that when youth engage in addictive behavior, little room is left for the development of more adaptive coping strategies. The subsequent antisocial behavior and attempts at suicide are likely reflective of a lack of alternative, socially acceptable coping options.

#### *Gender Differences in Gambling Behaviors*

There appears to be an overall consensus that gambling is more popular amongst males than females (e.g., Fisher, 1990; Govoni, Rupcich, & Frisch, 1996; Griffiths, 1989; Ladouceur et al., 1994; Stinchfield et al., 1997; Wynne et al., 1996), with pathological gambling at least twice as common among males (Lesieur & Klein, 1987; Sommers, 1988; Volberg & Steadman, 1988; 1989). Gupta and Derevensky (1996) found that females who were active video game players showed gambling prevalence rates similar to those of males. Interestingly, that subset of females actually gambled more frequently than males who are not attracted to video games. This finding suggests that some females

may be more attracted, or predisposed, to certain gambling-type activities, although it remains unclear as to what distinguishes this group from others. Several studies have reported no gender differences amongst adolescents who play slot-machines (Fisher, 1992; Huxley & Carrol, 1992) and among adolescents who play lotteries, VLT machines and horse and dog racing (Winters, Stinchfield, & Fulkerson, 1990), while other studies report that males play at a higher frequency than females (Huxley & Carrol, 1992). It is plausible that slot-machines or VLTs are more appealing to female adolescents than other forms of gambling, or that their participation in slot-machine playing is more socially acceptable than other types of gambling activities. In accordance with Griffiths (1989), it is also possible that slot machines are more popular amongst females due to the lack of perceived skill required and lower levels of risk-taking involved. Such findings suggest that the gender gap may be shrinking with increased availability and variety of gambling venues.

#### *Perception of Skill and Luck in Gambling Behavior*

Some individuals are realistic as to the role of luck and skill in any particular gambling venue, whereas others tend to be unrealistic, believing there is a greater element of skill (e.g., some believe that they can exert skill while playing slots). It remains unclear whether the adolescent's perception as to the amount of skill he/she can exert in the game influences playing behavior. The pathological adolescent gamblers in Wynne et al.'s (1996) study preferred card games, sports betting, and playing pool, all of these being activities with varying degrees of objective skill involved and very high perceived levels of skill. Games of pure luck such as raffles, lottery, scratch tickets, and bingo appealed more to the non-problem gamblers, especially females. A study of adults concluded that self-determined gamblers (characterized by an internal locus of causality) appear to be more attracted to games of skill due to the greater degree of participation in these games (Chantal & Vallerand, 1996).

Several studies have investigated the construct of "control" amongst gamblers' playing behaviors, and it appears pathological gamblers are more likely than social gamblers to experience illusions of control (Babad & Katz, 1991; Browne, 1989; Coreless & Dickerson, 1989; Lan-ger, 1975; Zenker & Wolfgang, 1982).

#### *Parental Influences*

Parents often serve as role models for gambling, with the literature clearly establishing parental gambling to be a good predictor of adolescent gambling (Arcuri, Lester, & Smith, 1985; Jacobs, 1989; Lesieur & Rothschild, 1989). Retrospective studies conducted among adult compulsive gamblers reveal that 25-40% of their parents were problem gamblers (Custer, 1982; Jacobs, Marstone & Singer, 1985). Among a sample of alcohol and drug abuse patients, 39% of those having fathers with a pathological gambling problem were pathological gamblers themselves, while an additional 23% were excessive gamblers. Heavy gambling by mothers of respondents was also significantly correlated with pathological gambling (Lesieur, Blume, & Zoppa, 1986). It may not necessarily be the specific modeling of parental gambling that results in similar behaviors in their children, but rather the parental examples of having an addiction in order to cope with stressful situations. Children from households where parental gambling is a problem report feelings of insecurity and a need for acceptance (Lesieur & Rothschild, 1989). Still further, recent research finds that parents are willing role models to their children's gambling (Gupta & Derevensky, 1997).

#### *Principal Aims*

Many issues concerning adolescent gambling problems remain unresolved. The purpose of this study is to examine adolescent gambling behavior from several perspectives: 1) to investigate the preferred types of gambling activities and degree of gambling involvement, including prevalence rates of pathological gambling, 2) to identify the familial and social influential factors associated with juvenile gambling, 3) to evaluate adolescents' cognitive perceptions of the roles *skill* and *luck* as they pertain to gambling, 4) to identify the underlying motivational factors which result in gambling participation, and 5) to assess the occurrence of comorbidity with other addictive behaviors. The adolescent population used in the current research spans a wide age spectrum, providing useful developmental information on the above issues. Considering very little is known about the correlates of problematic gambling amongst adolescents, the information obtained will help to provide researchers and clinicians with a more complete, and

hopefully more meaningful understanding of the problem of juvenile gambling.

There exists a concern over the nomenclature used to refer to youth who are experiencing serious gambling-related problems. Terms such as *pathological*, *compulsive*, *probable pathological*, and *Level III* gamblers have been employed in the literature to describe such individuals who experience academic, social, emotional, and financial problems resulting from their gambling involvement. The term *pathological gambler* will be used in this manuscript although the authors acknowledge the controversy over this issue.

## METHODOLOGY

### Subjects

Participants included 817 adolescents (417 males and 400 females) from grades 7 ( $n = 258$ ), 9 ( $n = 336$ ), and 11 ( $n = 223$ ), with an age range of 12 years to 17 years. These grades were selected in order to be able to identify developmental differences, and they represent the entire age range of high school students in Montreal. Approval was requested and obtained from three school boards and four high schools within these boards volunteered to participate. These school boards were contacted due to their proximity to the island of Montreal and include not only the city core but also the north, west, and east suburbs of the greater Montreal area. The rate of participation was approximately 80% (82% of the students in the participating schools were given parental consent to be in the study; however, not all of these students were in attendance at the time of our data collection). The schools sampled were representative of middle class communities in the greater Montreal area. Adolescents in these schools were primarily Caucasian.

### Instruments

*DSM-IV-J* (Fisher, 1992): This 12-item instrument is a screen for pathological gambling during adolescence, modeled after the DSM-IV (APA, 1994) criteria for diagnosis of adult pathological gambling. Each item endorsed is given a score of 1, with a score of 4 or greater

being the scoring criteria for pathological gambling. It is important to note that 5 of the 12 items on the instrument specify "in the past year," 6 of the 12 items are phrased in the present tense (e.g., "do you . . ."), and one item (item #11 on Table 4) may be interpreted as being both current and life-time. Fisher concluded, with her population of young fruit machine players, that the DSM-IV-J is as an effective discriminator of pathological gambling in children and adolescents.

*Gambling Questionnaire*: This is a revised version of the questionnaire developed by Gupta and Derevensky (1996). This questionnaire is self-administered and takes approximately 25 to 30 minutes to complete. This revised questionnaire assesses four general domains related to gambling behavior: *Descriptive information* including prevalence, types of activities, wagers, familial and peer influences, borrowing and stealing of money, and motivations for gambling; *cognitive perceptions* including self-evaluations of their gambling behavior (7-point Likert-scale), their notion of skill vs. luck as it pertains to gambling (7-point Likert-scale), whether gambling makes them feel important, and if they feel as though they gamble in excess or more than they would like to; *familial history* including their parent's gambling behavior; and *comorbidity* of other addictive and delinquent behaviors including cigarette smoking, alcohol and drug use. Although no reliability and validity data is available, all questions within each domain are discrete (face validity), analyzed individually, and no cumulative scores are calculated. The revision of this questionnaire from the original version includes the addition of *familial history* and *comorbidity* domains, as well as the question "How old were you when you first started gambling for money?"

### Procedure

Consent forms and a cover letter describing the purpose of the study were distributed to parents via the administration of the participating schools. All students who received parental permission and were willing to participate were included in the study. The paper-pencil instruments were group administered in their classrooms and/or school gymnasiums. Students were ensured confidentiality and were required to complete the instruments individually. Each participant was assigned an identification code, which was noted on all forms, and

no student was asked to provide their name. Teachers were not present during the administration of the questionnaires. Rather, research assistants were present at all times to supervise the data collection process and answer questions. Students required approximately 45 minutes to complete the instruments.

## RESULTS

### *Prevalence of Gambling*

Of the total adolescent sample, 80.2% reported having gambled during the past 12 months with 35.1% having reported gambling at least once per week. The DSM-IV-J criteria for pathological gambling ( $\geq 4$ ) was met by 4.7% of the sample while 3.3% of the sample could be described as problem gamblers (DSM-IV-J = 3). Five percent of all adolescent gamblers reported having stolen money in the past year for the purpose of gambling and 17% borrowed money to gamble during the past year. The mean age of onset of gambling behavior for the entire sample was 11.5 years of age. With respect to the identified pathological gamblers, 50% indicated stealing money and 55.3% reported borrowing money to fund their gambling in the past year, with the mean age of onset of their gambling behavior being 10.9 years.

Females were found to be as likely to gamble as males, with 78.8% of females and 81.5% of males reporting having gambled in the past year ( $\chi^2 (1, 816) = .996, p > .318$ ). However, males (46%) were twice as likely to have gambled on a regular basis (a minimum of once per week) than females (22.5%) ( $\chi^2 (1, 633) = 41.92, p < .001$ ). Gender differences were highly evident with respect to pathological gambling, with 7.2% of males and 2.0% of females meeting the criteria for pathological gambling ( $\chi^2 (1, 816) = 12.42, p < .001$ ). Stealing money to gamble was reported by 6.4% of male gamblers, but by only 3.2% of female gamblers ( $\chi^2 (1, 633) = 4.04, p < .04$ ). Twenty-one percent of male gamblers and 13% of females gamblers admitted to borrowing money in order to gamble ( $\chi^2 (1, 633) = 8.33, p < .04$ ). Males reported beginning gambling at 11 years, 6 months, and females at 11 years, 7 months respectively ( $t (1, 622) = .622, p = .534$ ).

Within the group of pathological gamblers, 13 of the 30 males (43.3%) and 6 of the 8 females (75%) indicated stealing money during the past year for gambling purposes. A reliable chi-square analysis could not be performed due to one cell size being smaller than 5 ( $n = 2$  for females who did not report stealing). With respect to borrowing money during the past year to gamble, 56.7% of males and 50% of females reported doing so ( $\chi^2 (1, 37) = .114, p = .736$ ).

Developmentally, rates of gambling participation showed little variability across age groups with 79.1% of grade 7, 78.9% of grade 9, and 83.4% of grade 11 students having reported gambling during the past 12 months ( $\chi^2 (2, 816) = 2.03, p = .363$ ). Similar results were obtained for weekly gambling, with 30.4% of grade 7, 37.4% of grade 9 and 37.1% of grade 11 students gambling at least once per week ( $\chi^2 (2, 816) = 3.31, p = .191$ ). Rates of pathological gambling based on the DSM-IV-J are 4.7% for grade 7, 5.7% for grade 9, and 3.1% for grade 11 students ( $\chi^2 (2, 816) = 1.91, p = .384$ ). Stealing for gambling purposes was reported by 5.4% of grade 7, 6.0% of grade 9, and 2.7% of grade 11 gamblers ( $\chi^2 (2, 663) = 2.60, p = .272$ ). Borrowing for purposes of obtaining gambling money during the past year was reported by 19.6% of grade 7, 18.2% of grade 9, and 12.4% of grade 11 students ( $\chi^2 (2, 663) = 4.11, p = .128$ ). The ages at which adolescents reported initially gambling were found to differ depending on their current grade level. Younger students reported an earlier age of onset than the older students, the mean ages of onset being 10 years, 2 months (SD = 1.86) for grade 7; 11 years, 6 months (SD = 2.27) for grade 9; and 13 years, 2 months (SD = 2.63) for grade 11 students. This trend should be interpreted with caution since the late-onset gamblers are not represented in the 7th grade sample (i.e. those starting to gamble at later ages will eventually increase the mean age of onset).

Stealing money during the past 12 months to gamble was reported by 66.7% of grade 7, 47.4% of grade 9, and 28.6% of grade 11 pathological gamblers (not on the DSM-IV-J). Borrowing money in the past year to gamble was reported by 58.3% of grade 7, 57.9% of grade 9, and 42.9% of grade 11 pathological gamblers. Chi-square analyses could not be reliably computed due to the small cell sizes for the grade 11 pathological gamblers ( $n = 7$ ).

*Involvement in Other High-Risk Behaviors*

The adolescents also provided information concerning their current alcohol consumption, drug use and cigarette smoking. With reference to the entire sample, rates of regular (at least once per week) gambling involvement (28.2%) exceeded the regular alcohol use (13.5%), regular illicit drug use (15.5%), and regular cigarette smoking (17.4%), making gambling the most popular activity of a potentially addictive nature amongst these adolescents. A comparison of gender differences reveals this to be true for males, although females gamble and smoke cigarettes to a similar extent. From a developmental perspective, regular participation in gambling activities was found to be more common than regular participation in other potentially addictive activities at each grade level (see Table 1).

Pathological gamblers engaged in other potentially addictive behaviors to a greater extent than non-pathological gamblers. They differed significantly from non-pathological gamblers in their regular

**Table 1**  
Reported Involvement in Addictive Behaviors, by Grade and Gender

Activity	Total Reported Use* N = 817			Weekly Use** N = 817				
	Gr 7	Gr 9	Gr 11	Gr 7	Gr 9	Gr 11		
Alcohol	36.8%	62.2%	79.8%	7.4%	14.0%	20.2%		
Drugs	3.5%	13.4%	26.5%	1.6%	2.1%	7.6%		
Cigarettes	18.2%	34.5%	48.4%	7.0%	16.1%	31.4%		
Gambling	79.1%	78.9%	83.4%	24	29.5	30.9		
	Males N = 417		Females N = 400		Males N = 417		Females N = 400	
Alcohol	61.6%	56.3%	18.9%	8.0%				
Drugs	15.6%	12.0%	4.1%	2.8%				
Cigarettes	29.7%	36.8%	16.3%	18.5%				
Gambling	81.5%	78.8%	38.1%	17.8%				

\*Percentage of those who reported engaging in this activity within the previous 12 months.

\*\*Percentage of those who report engaging in this activity a minimum of once per week.

drug ( $\chi^2 (1, 816) = 11.40, p < .001$ ), alcohol ( $\chi^2 (1, 816) = 38.74, p < .001$ ), and cigarette use ( $\chi^2 (1, 816) = 42.17, p < .001$ ).

*Types of Gambling Activities*

With respect to the entire sample of adolescents, the most popular current gambling activities during the past year was card playing (56.2%) followed by lottery ticket purchases (52.4%), bingo (35.2%), sports pools (34%), electronic gambling devices (31.8%), sports lottery tickets (30.3%), and games of skill (28.4%).

The two most popular gambling activities amongst male respondents were card playing (60.2%) and sports lottery tickets (49.0%). Sports pool betting and purchasing lottery tickets were popular as well (48.7% for both). For females, the most popular gambling activities were found to be purchasing lottery tickets (56.2%), playing cards (52.1%), and bingo (43%). Table 2 compares the frequency of male and female participation on the different types of gambling activities.

**Table 2**  
A Comparison of Males and Females on the Different Gambling Activities

Activity	Less than Once per Week		Once per Week or More		Total (Past Year)	
	Males n = 417	Females n = 400	Males n = 417	Females n = 400	Males n = 417	Females n = 400
Cards	43.9%	45.8%	16.3%	6.3%	60.2%	52.1%*
Lottery	37.2%	47.4%	11.5%	8.8%	48.7%	56.2%*
Bingo	24.5%	40.5%	3.4%	2.5%	27.9%	43.0%**
Sports pools	32.9%	17.3%	15.8%	1.5%	48.7%	18.8%**
Sports lottery	30.8%	9.5%	18.3%	1.3%	49.1%	10.8%**
Gambling machines	31.1%	21.0%	8.2%	4.0%	39.3%	25.0%**
Games of skill	27.1%	18.8%	8.6%	2.0%	35.7%	20.8%*

\*Statistically significant ( $p < .05$ ) as tested by Pearson chi-square analysis

\*\*Statistically significant ( $p < .001$ ) as tested by Pearson chi-square analysis

It is important to note that males tended to engage in all types of gambling activities more frequently than females.

The three most popular gambling activities amongst grade 7 adolescents were playing cards (53.1%), purchasing lottery tickets (46.6%), and playing bingo (42.6). For grade 9 adolescents, the three most engaged in gambling activities were playing cards (55.4%), purchasing lottery tickets (50.3%), and betting in sports pools (36.6%). For grade 11 students the activities most engaged in were the lottery (61.9%), playing cards (61.0%), and participating in sports. Bingo was found to be a popular activity for grade 9 (31.9%) and 11 (31.8%) students.

Although all respondents were under the legal age, 7.5% of the students reported gambling in casinos. Because the question was worded in the present tense (i.e. "Where do you gamble?"), a specific time frame for gambling in casinos can not be provided. The students were asked to indicate the percentage of time at the casino spent on each of the casino gambling venues. Of those reporting gambling in casinos, 50% of their time is reported to have been spent on slot machines, 26% of their time spent playing blackjack, 8% of their time playing roulette or keno, and 2% of their time spent playing baccarat. The remainder of their time was allocated to other card games and/or watching others gamble.

Gender differences regarding casino attendance were as follows: 8% of males and 6.5% of females reported gambling at a casino ( $\chi^2(1, 816) = 1.08, p = .299$ ). Slot machines were the most preferred casino activity by both males and females, although females attributed a greater percentage of their time (59%) at a casino to these machines than males (44%). Males reported spending 6% of their time at the casino playing keno, whereas females reported spending 10% of their time on this activity. In contrast, males devoted, on average, 30% of their time playing blackjack whereas females were less attracted to blackjack, allocating 7% of their time playing this activity.

As expected, the percentages of those reporting gambling in casinos increased with age, the percentages being 1.6%, 3.6%, and 20.2% for students in grades 7, 9, and 11 respectively ( $\chi^2(1, 816) = 72.45, p < .001$ ).

#### *Gambling Excursions*

A higher percentage of pathological gamblers, as compared to gamblers without gambling-related problems (a score of 0 on the

DSM-IVJ), reported going on trips during the past year for the primary purpose of gambling ( $\chi^2(1, 816) = 16.71, p < .001$ ), reported that gambling makes them feel important ( $\chi^2(1, 816) = 34.89, p < .001$ ), and reported seeking help for an addiction ( $\chi^2(1, 816) = 11.79, p < .001$ ).

#### *Familial and Social Influences*

Of those who gambled, 73% reported gambling during the past year with friends, 65.3% gambled with family members (including parents, siblings, and extended relatives such as grandparents, aunts, uncles, and cousins), 24.1% gambled alone, and 4.7% gambled with strangers. These categories are not mutually exclusive such that the same individuals who gambled with friends may have also gambled with family, strangers, or alone.

Male and female adolescents differed somewhat on with whom they engaged in gambling. Females reported gambling with family members considerably more often than males, the percentages being 73% and 59.5% respectively ( $\chi^2(1, 816) = 10.35, p < .001$ ). This difference is largely accounted for by those individuals who gambled with their parents, with 40.6% of females and 23.1% of males reporting doing so. Females generally reported gambling with siblings more than males ( $\chi^2(1, 816) = 3.85, p < .003$ ). Males were more inclined than females to have gambled with their friends ( $\chi^2(1, 816) = 37.92, p < .001$ ) or alone ( $\chi^2(1, 816) = 9.07, p < .003$ ). Nonetheless, these still remained popular choices amongst females.

Developmentally, a decreasing trend was evident for those who reported gambling with family members, the percentages being 77.5%, 66.8% and 52.7% for grade 7, 9, and 11 students respectively ( $\chi^2(2, 663) = 24.98, p < .001$ ). The results indicated that as adolescents mature, they decreased their gambling participation with parents ( $\chi^2(2, 663) = 9.74, p < .01$ ) and relatives ( $\chi^2(2, 663) = 24.83, p < .001$ ), and maintained their gambling involvement with peers. This shift took place between grades 7 and 9 and then appeared to remain relatively stable. An increasing trend with age was noted for those who reported gambling with strangers ( $\chi^2(2, 663) = 6.89, p < .03$ ). Playing with strangers referred to sitting at a blackjack table, roulette wheel, participating in sports pools, or other activities with individuals whom they were unfamiliar. Gambling alone appeared to increase with age, (although this increase does not meet statistical significance), and per-

tains primarily to lottery ticket purchases or machine playing (video lottery terminals, slot machines).

Independent of age, 66% of adolescents reported gambling primarily at home. However, a decreasing developmental trend was noted for those gambling at home ( $\chi^2(2, 663) = 17.60, p < .001$ ), indicating that the older respondents had other places more readily accessible to them where they gambled. The older students were more likely to have reported gambling at friends' houses ( $\chi^2(2, 663) = 8.62, p < .01$ ), arcades ( $\chi^2(2, 663) = 5.50, p < .05$ ), bars ( $\chi^2(2, 663) = 26.06, p < .001$ ), casinos ( $\chi^2(2, 663) = 73.03, p < .001$ ), and corner stores ( $\chi^2(2, 663) = 10.88, p < .01$ ). Other frequently cited places for gambling were relatives' houses (aunts, uncles, and grandparents), and at horse-racing tracks, with these locations being most commonly cited by grade 7 students.

A comparison of pathological ( $\geq 4$  on the DSM-IV-J) and non-pathological gamblers ( $\leq 3$  on the DSM-IV-J) suggests that pathological gamblers were more likely to have a mother ( $\chi^2(1, 816) = 11.80, p < .001$ ) or father ( $\chi^2(1, 816) = 9.44, p < .002$ ) with a gambling problem, were almost 5 times more likely to have legal actions pending against them ( $\chi^2(1, 816) = 20.69, p < .001$ ), 25 times more likely to have stolen money ( $\chi^2(1, 816) = 179.67, p < .001$ ), and 4 times more likely to have borrowed money to support their gambling behavior ( $\chi^2(1, 816) = 816, p < .001$ ) than non-pathological gamblers.

#### *Reported Self-Perceptions in Relation to Gambling Behavior*

Twenty-one percent of adolescents who gambled reported feeling that they gambled more than they want during the past year, 5.6% reported feeling as though they gambled in excess, and 5.5% of gamblers indicated that gambling makes them feel important. Gamblers were asked to rate their perceived gambling ability on a 7-point Likert scale, ranging from very poor (1) to excellent (7). The reported mean for the entire sample of gamblers was 3.89 (SD = 1.45). The pathological gamblers indicated a significantly higher mean of 4.93 (SD = 1.03) as compared to non-pathological gamblers (M = 3.82, SD = 1.44) ( $t(1, 659) = 4.676, p < .001$ ).

Gender differences were found, with 12.0% of female and 29.9% of male gamblers reporting a belief that they gambled more than they

believed reasonable ( $\chi^2(1, 663) = 32.83, p < .001$ ). Three percent of female gamblers and 7.9% of male gamblers reported their gambling behavior was excessive ( $\chi^2(1, 663) = 7.28, p < .007$ ). Furthermore, gambling reportedly made 6.7% of male gamblers and 4.1% of female gamblers feel important ( $\chi^2(1, 663) = 2.37, p = .124$ ). Gender differences were also noted with respect to their reported perceived gambling ability, the means being 3.47 (SD = 1.44) for female gamblers and 4.28 (SD = 1.34) for male gamblers on a 7-point Likert-scale, ranging from poor (1) to excellent (7) ( $t(659) = -7.43, p < .001$ ).

Developmentally, 13.7% of grade 7; 23.8% of grade 9; and 23.1% of grade 11 students who gamble reported that they gambled more than they want, with an increase from grade 7 to 9 ( $\chi^2(2, 663) = 10.33, p < .006$ ). More students in grade 11 than grades 7 and 9 reported feeling they gambled in excess ( $\chi^2(2, 663) = 11.86, p < .005$ ), with the percentages being 4.4%, 4.5%, and 8.8% for grades 7, 9, and 11 respectively. This was an interesting finding considering the rate of pathological gambling was found to be the lowest for the grade 11 adolescents. Adolescents of all ages were equally likely to report that gambling made them feel important ( $\chi^2(2, 663) = .218, p = .897$ ), the percentages being 5.4% for grade 7, 6.0% for grade 9, and 4.8% for grade 11 students. Gamblers did not perceive their gambling ability to increase with age, the means being 3.81 (SD = 1.58), 3.96 (SD = 1.44), and 3.86 (SD = 1.29) on a 7-point Likert scale ( $F(2, 658) = 0.676, p = .51$ ) for grades 7, 9 and 11 respectively.

Those individuals engaging in gambling activities indicated the amount of luck and skill they perceived to be involved in gambling activities (non-gamblers did not respond to this question). Each of the luck and skill variables were measured with a 7-point Likert scale ranging from *none* (1) to *a lot* (7). Overall, the students who gambled indicated a mean of 5.69 (SD = 1.74) for the amount of *luck* required and a mean of 4.66 for the amount of *skill* required to be a good gambler. This finding can be interpreted to suggest that although they perceive gambling to be primarily luck-driven, they also believe that skill plays a meaningful and important role. However, this finding may be contingent upon the gambling activities in which they engaged. When comparing non-pathological gamblers (M = 4.63, SD = 1.85) to pathological gamblers (M = 5.22, SD = 1.65) on their ratings on the 7-point Likert scale, no significant differences emerged for the perceived skill ( $t(812) = 1.89, p = .059$ ) or the perceived luck (non-



pathological gamblers,  $M = 5.59$ ; pathological gamblers,  $M = 5.68$ ) ( $t(812) = -.021, p = .983$ ) involved in gambling activities.

Gender differences were found with respect to the amount of perceived luck involved in gambling activities, with males having endorsed the role of luck ( $M = 5.82, SD = 1.66$ ) more often than females ( $M = 5.5, SD = 1.81$ ) ( $t(814) = -2.22, p < .026$ ). However, males and females agreed on the amount of skill involved, with both males and females having obtained a mean rating of 4.60 ( $SD = 1.89, SD = 1.80$  respectively) on the Likert scale. Similarly, within the group of pathological gamblers, gender differences were reflected in the perceptions of the amount of luck involved in gambling ( $t(1, 37) = -2.31, p < .027$ ), with males endorsing greater amounts of luck needed ( $M = 6.03, SD = 1.63$ ) than females ( $M = 4.38, SD = 2.34$ ). Male and female pathological gamblers did not differ in their perceptions of the role that skill plays in gambling ( $t(1, 37) = -.129, p = .898$ ).

#### *Reported Reasons for Engaging in Gambling Behavior*

The most endorsed reason for engaging in gambling behavior during the past year was for purposes of enjoyment (79.5%), followed by the desire to make money (61.9%), excitement (59.4%), social involvement (12.4%), relaxation (7.6%), escape daily problems (3.5%), to feel older (2.6%), to alleviate depression (2.3%), and to deal with loneliness (1%). A large degree of overlap, with the same respondents endorsing more than one reason was found.

The reasons for engaging in gambling activities were examined across different levels of gambling involvement: those gambling during the past year and obtaining a score of  $\leq 2$  on the DSM-IV-J (social gamblers), those obtaining a score of 3 (problem gamblers), and those obtaining a score of  $\geq 4$  (pathological gamblers). The rationale for dividing the sample of gamblers into three categories was to examine whether the motives for engaging in gambling differed depending upon the degree of gambling involvement. This grouping was important, as it has not yet been established whether or nor the motivations underlying gambling participation differ among social, problem, and pathological gamblers. Although the criteria for the grouping (DSM-IV-J score) is somewhat unreliable, it nonetheless

permitted a preliminary analysis. Conceptually, a small number of endorsed items (2 or fewer) was likely a relatively common occurrence amongst adolescents (e.g. spending school dinner money on gambling), and therefore should not necessarily be viewed as problematic behavior (similar arguments have been made by Henry Lesieur for performance on the SOGS). It is important to note that the adolescent problem and pathological gamblers reported gambling for a greater number of reasons than reported by social gamblers. Enjoyment, excitement, and the desire to make money were the most popular reasons indicated by all groups, with gambling to escape problems, alleviate depression, cope with loneliness, relaxation, and promoting social involvement occurring more frequently amongst problem and pathological gamblers as compared to social gamblers. Pearson chi-square analyses were performed for each reason, across the three levels of gambling involvement, and the results are reported in Table 3.

**Table 3**  
**Reported Reasons for Engaging in Gambling Behavior**

Reasons	Social Gamblers	Problem	Pathological
	(DSM-IV-J $\leq 2$ ) $n = 590$	Gamblers (3 on DSM-IV-J) $n = 27$	Gamblers (4+ on DSM-IV-J) $n = 38$
Enjoyment*	77.3%	88.9%	94.7%
Excitement*	55.7%	92.6%	92.1%
Make money*	59.5%	92.6%	84.2%
Social involvement*	10.7%	22.2%	31.6%
Escape problems*	1.7%	11.1%	26.3%
Alleviate depression*	1.4%	2.4%	13.2%
Relaxation*	7.2%	7.4%	13.2%
Feel older*	1.9%	3.7%	13.2%
Loneliness	0.5%	7.4%	2.6%
Other reasons	6.1%	3.7%	2.6%

\*Statistically significant ( $p < .05$ ) as tested by Pearson chi-square analysis

*Response Patterns on the DSM-IV-J*

An analysis of the items endorsed on the DSM-IV-J by the 38 adolescents who met the criteria for pathological gambling provides clinically meaningful information concerning the most frequently reported problems by these youth (see Table 4). The DSM-IV-J question most frequently endorsed by pathological gamblers concerned the preoccupation with gambling activities and the planning of the next gambling venture. Lying to friends and family about their gambling behavior and chasing their gambling losses were also highly endorsed. Missing school for gambling purposes was the item with the lowest endorsement, indicating that these pathological gamblers are managing to sustain their gambling outside of school hours. The question concerning whether family relationships have been destroyed by their gambling was relevant to only 10.5% of this group of pathological gamblers. This result is surprising considering the percentage of those who report lying to their families and stealing money from them. It is likely that most of the adolescent pathological gamblers have been able to successfully hide their gambling problem from their families.

**DISCUSSION**

The results clearly indicate that a small but identifiable number of adolescents (4.7%) have a significant gambling problem. Gambling was found to be the most popular activity of a potentially addictive nature among this sample engaged in on a regular basis (at least once per week) by 28.2% of adolescents. The gambling rates of these adolescents surpassed those for regular cigarette smoking, regular alcohol consumption, and the regular use of illicit drugs. This was found for both males and females, at all grade levels. The average age at which these individuals reported having started gambling was 11.5 years, indicating an urgent need to target prevention efforts at the elementary school level. Pathological gamblers reported a mean age of 10.9 years for gambling onset. Rates of gambling involvement showed little variability across age groups, indicating that it is a popular pastime for the vast majority of high school students.

Most adolescents were found to have gambled in their own homes, more than any other location. These findings are consistent with those obtained with children aged 9 to 14, of whom almost 90%

**Table 4**  
Percentages of Affirmative Responses Endorsed to Each Question of the DSM-IV-J by Identified Pathological Gamblers

<i>Question Items on the DSM-IV-J</i>	<i>Pathological Gamblers n = 38</i>
Do you often find yourself thinking about gambling activities at odd times of the day and/or planning the next time you will play?	81.6%
Do you lie to your family or friends or hide how much you gamble?	78.9%
After spending money on gambling activities do you play again another day to try and win your money back? (More than half the time)	73.7%
In the past year have you spent your school dinner money, or money for bus fares, on gambling activities?	68.4%
In the past year have you taken money from someone you live with, without their knowing, to gamble?	57.9%
Do you ever gamble as a way of escaping problems?	50.0%
Do you find you need to spend more and more money on gambling activities?	36.8%
In the past year, have you stolen money from outside the family, or shoplifted, to gamble?	28.9%
Do you become restless, tense, fed up, or bad tempered when trying to cut down or stop gambling?	26.3%
In the past year, have you gone to someone for help with a serious money worry caused by participation in gambling?	21.1%
Have you fallen out with members of your family, or close friends, because of your gambling behavior?	10.5%
In the past year, have you missed school to participate in gambling experiences? (5 times or more)	7.9%

reported stating gambling with family members (Gupta & Derevensky, 1997).

Another revealing finding was the fact that adolescents endorsed the belief that significant amounts of both luck and skill were necessary to be a successful gambler. Thus, although the youth are aware that gambling is primarily luck driven, they also believe that they can exert meaningful amounts of skill while gambling, endorsing an illusion of control. Males reported higher levels of self-perceived gambling ability than females. This phenomenon may contribute to the higher percentage of males engaging in gambling behavior. Previous research with elementary school children as young as nine years of age reported similar findings, with the highly endorsed belief that skill and luck were both necessary to large degrees for success in gambling activities (Gupta & Derevensky, 1996).

Developmentally, the rates of pathological gambling were found to be higher for grade 7 than grade 11 students. This finding is consistent with other studies and has been explained by the notion that adolescents may experience a natural recovery and 'grow out' of the gambling problem as they mature (Shaffer & Hall, 1996; Shaffer & Jones, 1989). Although only longitudinal research studies can directly confirm or disconfirm this hypothesis, the authors acknowledge that maturation may account for some of the decrease in number of pathological gamblers from one cohort to the next. However, it is also plausible that what appears to be a decrease in the prevalence rate of pathological gambling from one age group to the next may be a cohort effect, such that younger individuals (grade 7) have had a different exposure to gambling than older students (grades 9 and 11) (similar results were reported by Volberg (1998) in a prevalence study of adolescent problem gambling in New York State). Following this line of logic, as this cohort of grade 7 matures, in several years the prevalence rate of pathological gambling will likely be higher than those found in the adolescents currently in grade 9. Thus it is a possibility that when following a cohort longitudinally, the prevalence of problem gambling would increase or remain consistent. This is in contrast to the hypothesis of decreasing prevalence of problem gambling amongst adolescents as they mature found in developmental studies incorporating cross sectional designs (Stinchfield et al., 1997). More research is needed before any definitive conclusions can be drawn on this debate of cohort effect vs. natural recovery. Nonetheless, the young ages at

which these youth are starting to gamble represents a serious concern. Other research concerned with addictive behavior has shown that the severity of problems associated with an addictive behavior are greater amongst those who start at young ages (Bailey, Flewelling & Rachal, 1992; Custer, 1982; Dell, Ruzicka, & Palisi, 1981; Harrison & Luxenberg, 1995; Wynne et al., 1996). Recent studies have confirmed that gambling is a common activity amongst elementary school children, as early as 8 years of age (Gupta & Derevensky, 1996; Ladouceur & Dubé, 1994). However, Stinchfield and his colleagues (1997) reported encouraging findings that gambling prevalence rates among Minnesota public school students did not significantly increase between 1992 and 1995. The authors nonetheless caution that due to the widespread accessibility and advertising of gambling venues, it is necessary to continue to monitor the prevalence of youth gambling.

The most frequently reported reasons for gambling are for the enjoyment and excitement that it provides, which is consistent with our previous findings with younger children (Gupta & Derevensky, 1996) and adults (Powell, Hardoon, Baboushkin, Gupta, & Derevensky, 1996). However, problem and pathological gamblers in this study were more likely than non-problem gamblers to report gambling for reasons of escape, to alleviate depression, to promote relaxation, and to cope with loneliness. These findings suggest that as gambling problems increase in severity, the multiple purposes that gambling serves for individuals change and increase in number. It is noteworthy that gambling to make money is a less endorsed reason by the pathological adolescent gamblers as compared to the problem gamblers, but that the excitement factor is much more popular amongst those experiencing problem and pathological gambling in comparison to non-problem gamblers. For problem and pathological gamblers, gambling is viewed as a medium for stimulation, enjoyment, and a way of coping with difficulties rather than a means of monetary gain. Therefore, gambling may be viewed as a *vehicle* (D.F. Jacobs, personal communication, Sept. 28, 1994) that transports problem and pathological gamblers to a fantasy place without daily life hassles, depression, anxiety or loneliness, via dissociation. The reported reasons for engaging in gambling activities directly support Jacobs' (1987) General Theory of Addictions, supporting his contention that all addictions serve the common purpose of escape. Our recent empirical data and clinical work with adolescents with severe gambling problems support Jacobs' con-

tention (Gupta & Derevensky, 1998). The implications of this theoretical stance are numerous and future research efforts into examining which individuals are at heightened risk for developing an addiction to gambling will provide valuable information which can be directly translated into prevention curricula for elementary and secondary schools as well as treatment programs.

Adolescent pathological gamblers differed from social, non-problem gamblers on many dimensions. For instance, pathological gamblers were more likely to have a parent who gambles excessively, a finding also reported by Winters, Stinchfield, and Fulkerson (1991). This finding is not surprising, since children of problem gamblers are likely to learn from their parents that gambling is an acceptable activity, and that it is a way to escape from problems. As with most behaviors, children follow the example of their parents. Social learning theorists, such as Bandura (1977; 1986), have long contended that vicarious learning and modeling play an important role in shaping individual behaviors. For children, social learning theorists further posit that individuals are more likely to imitate and model those individuals they value, such as parents, siblings, peers, and those perceived as 'significant others,' especially if the individuals are rewarded for their actions.

The results further suggest that these adolescent pathological gamblers differed from their peers on other dimensions. They reported that gambling makes them feel important more than their non-pathological peers. This finding is alarming, as it suggests that the gambling activity fulfills such a substantial need for these youth. Excessive gambling permits adolescents to feel good and important despite all the problems associated with their gambling addiction. As such, this is likely a major factor in maintaining their gambling behavior. Adolescent pathological gamblers were also more likely to report engaging in illegal acts, stealing and borrowing money to finance their gambling habits.

Bingo is a gambling activity that has received little attention in the literature to date. Although bingo halls are growing in number and in popularity, little is known about which types of individuals gamble in bingo halls. This study revealed that bingo is a popular gambling activity amongst adolescents. Females, in general, were more likely to report gambling in bingo halls, although males are more likely to do so on a weekly basis. In addition, the grade 7 students reported playing

bingo more than the older adolescents. Considering that younger adolescents are more likely to gamble with family members, it is possible that they play bingo with their parents and grandparents, and that as they get older, they shift to gambling with their peers rather than playing bingo. The ability to increase one's stake in bingo is generally limited, thereby potentially minimizing one's level of excitement. Older students, because of their physical stature, have easier access into other gambling venues.

With the proliferation of casinos and the surge of gambling opportunities in most communities throughout Canada and the U.S., more and more children are exposed to the "gambling industry," be it through their parents, friends, strangers, or the media (via television print, radio, or billboard advertisements). Previous results from elementary school children support the finding that most children gamble with their families as their first exposures to gambling (Gupta & Derevensky, 1997). The fact that more adolescents gamble on a regular basis than smoke cigarettes or consume alcohol may be a consequence of exposure to parental gambling, a lack of education, prevention and awareness in the schools, and the vast accessibility of gambling opportunities. There is little doubt that a large percentage of youth are exposed to parental smoking and alcohol use as well. They are, however, exposed to prevention programs, media, and school campaigns that inform them that these behaviors can lead to addiction. While many parents view gambling as an innocuous 'harmless' behavior, few would permit their children to engage in repeated alcohol and drug use. It is unfortunate that today's adolescents experiencing gambling addictions were not warned and informed about the potentially addictive nature of gambling activities. Gambling is really the only addictive activity that youngsters are exposed to on a daily basis that is not counterbalanced by negative parental attitudes and social outreach projects exerting prevention and awareness efforts. Such prevention efforts are long overdue and desperately needed. Parents could benefit from educational information outlining the consequences of exposing their children to irresponsible gambling behavior (e.g., loss of control, exceeding financial limits, excessive time spent on gambling, chasing losses). Furthermore, if schools could be convinced of the importance of gambling awareness, information and prevention may be incorporated into already existing mental health and education programs.

The DSM-IV-J items endorsed by the majority of the pathological gamblers provide meaningful insight into their thinking and experience. One major characteristic of addictions, in general, is a mental preoccupation with when and how one will obtain the next contact with their focus of addiction, be it gambling, drugs, alcohol, food, or sex, and this association was supported in the present findings. The adolescents meeting the criteria for pathological gambling endorsed the item referring to preoccupation more than any other, and this preoccupation may have serious implications for school success if these individuals are preoccupied with gambling and are unable to focus while performing academic and work-related tasks. Lying to family and friends about their gambling behavior in order to hide their addiction is the second most prevalent problem related to students' excessive gambling. The fact that missing school for gambling was the least endorsed item by these pathological gamblers may be a reflection of the fact that the respondents were sampled in their schools. Those who may have dropped out of school because of gambling-related problems are not represented in this study.

The prevalence rate of pathological gambling in this study is markedly lower, although consistent with other prevalence studies (see Shaffer & Hall, 1996 for a review), than the rates established in the recent Alberta study (Wynne et al., 1996) which found 8% of adolescents meeting the criteria. This discrepancy may imply that Alberta has a higher percentage of adolescent pathological gamblers than found in Quebec. However, the discrepancy may also be explained by the fact that different measures and methodologies were used to estimate the prevalence rates. Unlike the present study, a telephone survey methodology was employed to Wynne et al. (1996). The present study used the DSM-IV-J, a direct adaptation of the DSM-IV criteria for pathological gambling, for use with adolescents. The DSM-IV, by its very nature, is a diagnostic instrument used in clinical settings whereas the SOGS, used in the Alberta study, is more of a screening tool. The DSM-IV-J is likely the most conservative of the two measures, possibly accounting for some of the discrepancy. Empirical support for this premise has been found by Derevensky and Gupta (1997), who examined prevalence rates of older adolescents using the SOGS-RA, DSM-IV-J, and the Gamblers Anonymous Twenty Questions, and concluded the DSM-IV-J to be the most conservative measure of the three. Another reason for the large discrepancy may be the nature of the sampling procedures,

with the Alberta sample including youth no longer in the school system.

While no single *profile* of a compulsive adolescent gambler exists, the correlates of gambling behavior as well as the differential responses on the DSM-IV-J are important clinical markers for treatment. Juvenile problem gambling is a fairly new phenomenon with which clinicians, researchers, parents, teachers, and educators must contend. Research in this domain must continue, and social policy reform must be advocated until effective awareness, prevention, and treatment programs form an integral part of all communities.

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