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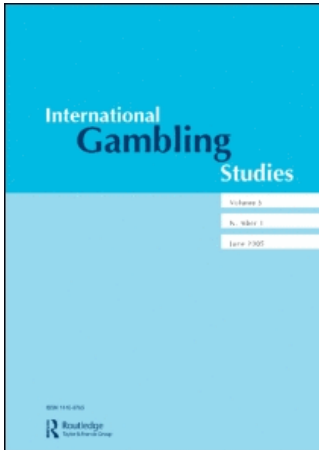
On: 18 May 2007

Access Details: [subscription number 770885180]

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954

Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



International Gambling Studies

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713701604>

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To cite this Article: Felsher, Jennifer, Derevensky, Jeffrey and Gupta, Rina, 'Lottery participation by youth with gambling problems: are lottery tickets a gateway to other gambling venues?', International Gambling Studies, 4:2, 109 - 125

To link to this article: DOI: 10.1080/14459790412331296956

URL: <http://dx.doi.org/10.1080/14459790412331296956>

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Lottery Participation by Youth With Gambling Problems: Are Lottery Tickets a Gateway to Other Gambling Venues?

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ABSTRACT *The aim of the present study was to investigate the types of gambling activities youths with gambling problems participate in and whether the lottery is a key gambling venue for these young people. Secondly, we sought to ascertain whether youths with gambling problems display similar gambling behaviour with lottery tickets as those addicted to traditional forms of gambling. Participants were 1,072 young people, 10–18 years of age, in Ontario, Canada. Youths with gambling problems reported having a preference for lottery tickets compared to other forms of gambling. Differences were found for the frequency with which probable pathological gamblers reported going to the store specifically to purchase lottery tickets. Furthermore, probable pathological gamblers reported chasing their losses after having played the lottery more than the other gambling groups. This research demonstrates that youths with gambling problems gamble primarily with lottery products and exhibit similar pathological gambling behaviour (e.g., chasing) as those individuals addicted to other forms of gambling venues. Furthermore, the results suggest that lottery tickets are a potentially addictive activity that introduces youth to the exciting properties of gambling.*

Introduction

Gambling activities have become increasingly available and easily accessible with the lottery being a highly popular form of gambling activity among adults (Azmier, 2001). While gambling is generally thought to be an adult activity a considerable number of studies have reported that youth participate regularly in legalised gambling activities despite age prohibitions, with a particular affinity for playing the lottery (Jacobs, 2000; Radecki, 1994; Shaffer and Hall, 1996; Westphal *et al.*, 1998).

Similar to adults, most youths gamble responsibly without ever developing a serious problem. Nevertheless, there is a small but identifiable proportion of youth who gamble excessively and experience a number of significant gambling-related problems (Gupta and Derevensky, 1998a, 1998b; Jacobs, 2000; National Research Council, 1999; Stinchfield and Winters, 1998). Research efforts in Canada and the US have revealed that over 80% of children and adolescents engage in gambling activities, between 4–8% of youths meet the criteria for pathological gambling, with another 10–14% of youths at-risk for developing a serious gambling problem (Derevensky and Gupta, 1998a, 1998b, 2000; Gupta

and Derevensky, 1998a, 1998b; Hardoon and Derevensky, 2002; Ladouceur, 1996; National Research Council, 1999; Shaffer and Hall, 1996, 2001).

Research on gambling related issues have found individuals who begin gambling during childhood are more likely to develop gambling problems as adults (Fisher, 1993; Griffiths, 1995; Jacobs, 1989; Winters *et al.*, 1993). Retrospective studies of both adult and youth problem gamblers report the onset of their pathological behaviours to have begun quite early. Jacobs' (2000) literature review found that more than one third of youths reported their first experience with gambling for money before they were 11-years-old, with 70–88% reporting that they first gambled before the age of 15. While it is common for youths to gamble (with and for money) prior to 15-years, the majority of these individuals report an infrequent gambling pattern, a minimal amount of money wagered and few demonstrate signs of significant pathology.

Gambling Preferences and Lottery Playing Amongst Youths

As accessibility to multiple forms of gambling and gambling venues have increased, underage youths appear to be participating in most of these activities in spite of legal prohibitions. Gambling preferences may be dependent upon a number of factors: ease of accessibility, cost and level of interest. A number of studies examining youth gambling patterns in North America have reported that lottery playing exceeded all other forms of regulated gambling for underage youths (Felsher *et al.*, 2004; Gupta and Derevensky, 1998a; Westphal *et al.*, 1998, 2000). Jacobs (2000), after reviewing a large number of studies of adolescents in both Canada and the US, reported that 67% of underage youths gambled on the lottery during the past year, exceeding all other forms of gambling. Shaffer and Zinberg (1994) had earlier reported that 47.1% of seventh grade children had purchased a lottery ticket during their lifetime and 22.9% had purchased a lottery ticket during the past month. By the time students had reached their senior year in high school (still under the legal age to purchase a lottery ticket) the rate had increased to 74.6% for lifetime purchases, with 35.3% of youths reporting having purchased lottery tickets during the previous month.

Risks and Outcomes Associated with Gambling Participation

There is ample evidence to suggest gambling begins earlier than other potentially addictive behaviours (e.g., substance and alcohol abuse, cigarette smoking) (Gupta and Derevensky, 1998a; Shaffer and Zinberg, 1994). Equally concerning is the belief that early lottery playing may lead to other forms of gambling behaviours, disordered gambling, and may be a gateway for other risk-taking and addictive behaviours (Korn and Shaffer, 1999; Shaffer and Zinberg, 1994). Since enforcement of age restrictions for lottery participation in most jurisdictions are minimal at best, lottery participation has a broad-based influence on public health (Korn and Shaffer, 1999).

Lottery playing amongst children and adolescents has not been restricted to North America. Fisher (2000a) reported that 1.7% of underage youths had a serious gambling problem with scratch tickets in the UK. These youths exhibited a wide range of social problems as a result of their scratch ticket participation. Youths who purchased scratch cards regularly and displayed gambling-related problems were more dishonest, experienced disrupted interpersonal relation-

ships, had increased truancy rates and were involved in more criminal behaviours in comparison with their peers. Jacobs (2000), after reviewing a large number of North American adolescent studies, reported that youths with serious gambling problems tended to endorse more positive attitudes toward the lottery (e.g., lotteries are good idea, winning a big lottery jackpot is not very rare, gambling is a harmless pastime, and I can make a lot of money playing games of chance) (see Dickson *et al.*, 2003, for further research on youth attitudes toward gambling). Given their positive attitudes regarding gambling, it is not surprising that adolescents with gambling problems were more likely to have gambled on a greater variety of different games, to have wagered more money on a weekly basis and to have spent more time gambling.

Research has found that most youth problem gamblers follow a similar pattern of gambling before experiencing difficulties. This pattern generally includes playing cards for money, betting on skill activities (e.g., pool, videogames, etc.), purchasing lottery tickets, sports betting (both legal through provincial and state lottery corporations (where applicable) and illegal sports betting), with many problem gamblers progressing to video lottery terminals, electronic gambling machines and/or casino playing (Gupta and Derevensky, 2000). Despite our understanding of this progression and the popularity of lottery products amongst underage youths, most studies have failed to carefully examine adolescent pathological gamblers' pattern of addiction and factors associated with their lottery playing. Given the easy accessibility and appeal of lottery tickets for youths compared to other forms of gambling activities (Felsher *et al.*, 2001), it is likely that youths with gambling problems begin by purchasing and playing lottery tickets. The aim of the current study is to examine the types of gambling activities in which youths with gambling problems participate, whether the lottery remains a primary form of gambling activity for these youths and whether playing the lottery represents a significant problem. The results presented are part of a much larger study identifying the structural characteristics of scratch tickets that are appealing to adolescents.

Method

Participants

Participants included 1,072 youths (521 males, 551 females) from grades 6 through to 12, age range 10 to 18-years-old; $M = 14:1$, $SD = 2.09$. Approval was requested and obtained from seven school boards, with nine high schools and 20 elementary schools (both urban and rural) agreeing to participate. School boards, schools and children were selected based upon their willingness to participate and represent a variety of urban and rural regions within the Province of Ontario, Canada, and are generally representative of the adolescent population.

Background

There currently exist 10,600 lottery retailers and online terminals in the Province of Ontario, Canada. Legislation passed in 1997 indicates that it is an offence punishable by significant fines and revocation of the licence to sell any form of lottery ticket to individuals under the age of 18. In the past fiscal year, the

Province of Ontario recorded lottery sales of \$2.2 billion CAD (Ontario Lottery Corporation website, 2004).

The following types of tickets are available for sale through lottery retailers: *Lottery Draws* (Jackpot Draws (e.g., Super 7, 6/49), Daily Draws (e.g., Pick-3, Daily Keno), *Sports Pro-Line* (online wagering on sports events) and instant *Scratch Tickets* (17–20 versions are generally available at any given time with the purchase value ranging between \$1–\$10 CAD) (Ontario Lottery Corporation website, 2004). It should also be noted that all winnings on any form of lottery in Canada are currently tax exempt.

Gambling activities questionnaire (GAQ) (Gupta and Derevensky, 1996). The GAQ is a measure that examines familial gambling, co-morbidity with other addictive behaviours, types of gambling activities engaged in and frequency of gambling behaviour during the past 12 months. For the current study, only the descriptive information was obtained for the types of activities and frequency of gambling involvement. These descriptive questions were presented as a list of gambling activities where participants indicated the frequency they engaged in a given activity during the past 12 months (never, less than once a month, once a week or more). Each item is discrete, was analyzed individually and no cumulative scores were calculated.

DSM-IV-MR-J revised (Fisher, 2000b). This 12-item, 9-category instrument is a screen for youth pathological gambling modeled after the DSM-IV (APA, 1994) criteria for diagnosis of adult pathological gambling and an earlier version for adolescents, DSM-IV-J (Fisher, 1992). Both the DSM-IV-J and the DSM-IV-MR-J have been used by several researchers and been found to be a conservative measure of adolescent pathological gambling (Derevensky and Gupta, 2000; Derevensky *et al.*, 2003; Gupta and Derevensky, 1998a, 1998b; Gupta *et al.*, in press). The DSM-IV-MR-J (MR = multiple response, J = juvenile) was developed for use with youths that have gambled during the past year. To compensate for the loss of opportunity for probing, the majority of the questions in the revised instrument have been given four response options (never, once or twice, sometimes, or often).

Items endorsed to a criterion level are given a score of 1. Those individuals indicating that they have gambled and who have a total score of 0–1 are considered to be social gamblers; those with a total score of 2–3 are considered to be at-risk for a gambling problem; and those with a total score of 4–9 categories or greater are indicative of severe gambling problems (probable pathological gamblers). Factor analyses revealed that the scale is represented primarily by two main factors. The first factor, 33.3% of the variance, measures the negative psychological dimensions associated with excessive gambling involvement including preoccupation, tolerance, loss of control, escape and chasing losses. The second factor, 11% of the variance, is associated with withdrawal symptoms experienced when trying to cut down on gambling and the antisocial/illegal behaviours associated with juvenile problem gambling. Internal reliability for this scale was .75 (slightly lower than the .78 from the original DSM-IV-J screen).

Measuring youth lottery participation and playing behaviour (Felsher *et al.*, 2001). Preliminary focus group testing consisting of 47 youths aged 12–19 (13 in grade 6; 20 in grade 8; 8 in grade 10/11; 6 in grade 12) was conducted to ascertain information concerning lottery playing/purchasing behaviour. Group discussions addressed age of onset, rate of lottery playing behaviour, accessibility to

lottery products, types of lottery playing and other issues surrounding lottery playing. Pertinent information contained from focus group testing and previous research was used to construct a questionnaire for the community sample.

Based upon focus group testing, a 140-item instrument was developed for a larger study examining structural characteristics of lottery scratch cards appealing to youths. Of the 140 items, 40 items were chosen to examine the types of gambling activities in which youths with gambling problems participate and probable pathological gamblers' lottery playing behaviour. More specifically, the items selected for this study ascertained *age and rate of lottery playing behaviour* (9 questions), *gambling activity preferences and desirability of lottery products compared to other gambling venues* (17 questions), *lottery ticket purchases* (3 questions), *lottery ticket playing behaviour* (5 questions) and *perceived probability of winning the lottery and level of skill required* (6 questions).

Questions within each section are discrete, analysed individually and no cumulative scores are calculated. Reliability estimates using 80 participants (20 students from within grades 6, 8, 10 and 12) were performed using a test-retest method within one week between testing sessions. Items deemed most important were selected and concordance rates were calculated to determine the agreement between sessions one and two. Overall, a relatively high concordance rate was found for most items, ranging from 56%–95%, with a mean concordance rate of 82%.

Procedure

Informed consent was obtained from parents of all children prior to their participation. The measures were group administered in classrooms and/or school cafeteria by several trained research assistants. To avoid potential social desirability effects, participants completed the questionnaire individually and were assured anonymity. Research assistants were present at all times to answer pertinent questions. Gambling was defined as an activity that involves an element of risk where money was wagered and could be won or lost. Students completed all instruments in approximately 45–60 minutes.

Results

The DSM-IV-MR-J criteria for probable pathological gambling was met by 2.8% (scores of ≥ 4) of the entire sample, while 6.8% of youths were categorised as at-risk for pathological gambling problems (scores of 2–3), 65.2% were identified as social gamblers (score of 1) (experiencing few negative gambling related problems) and 27.2% were non-gamblers.

Comparison of Lottery Play and Desirability of These Products to Other Gambling Activities

To examine lottery playing behaviour relative to other gambling activities participants indicated the types and frequency (never, occasionally, regularly) of gambling activities engaged in during the past 12 months. Of those youths who

reported gambling for money, combining occasional and regular (once per week or more) playing behaviour, both social gamblers and at-risk gamblers reported the greatest gambling related to card playing (57.3% and 82.2% respectively) and scratch lottery tickets (53.7% and 60.3% respectively) while the probable pathological gamblers preferred lottery draws/scratch tickets (88.8%), sports lottery (77.8%) and wagering on sporting events (78.5%) during the past year (see Table 1).

Significant differences in participation rates were found across levels of gambling severity for participation with lottery draws/scratch tickets, $\chi^2(3, N = 951) = 239.27, p = .001$. While chi-square analyses could not reliably be computed for regular (once a week or more) gambling participation due to small cell sizes for the at-risk and probable pathological groups, a linear increase was found across gambling severity for regular participation in all gambling activities. The most notable increase in gambling participation across groups was found for lottery draw/scratch tickets, with 48.1% of probable pathological gamblers reporting participating regularly (weekly and daily) with lottery draw/scratch tickets (past 12 months) compared to 5.6% of social gamblers and 13.2% of at-risk gamblers.

Participants rated desirability and attractiveness of various forms of gambling on a 7-point Likert scale. A $4 \times 4 \times 2$ multivariate analysis of variance (MANOVA) was performed, including gambling group, gender and grade as fixed variables and desirability measures for scratch tickets, lottery draws, sports betting, video games, slot machines, bingo and horse track wagering. The results revealed significant main effects for gender, grade and gambling group, and an interaction effect of gender by grade.

A significant difference by gambling group was found for scratch tickets, $F(3, 941) = 58.63, p = .001$ and lottery draws, $F(3, 941) = 13.45, p = .001$. Specifically, probable pathological gamblers reported a greater preference for scratch tickets, $M = 5.57, SD = 1.60$, lottery draws, $M = 4.26, SD = 1.70$, and sports betting, $M = 3.86, SD = 2.10$, compared to social gamblers, $M = 4.46, SD = 1.77$; $M = 2.69, SD = 1.51$; $M = 2.58, SD = 1.90$, and at-risk gamblers, $M = 4.82, SD, 2.03$; $M = 3.51, SD = 1.77$; $M = 3.63, SD = 2.34$.

Of those youths who indicated having played the lottery, differences in participation rates by gambling severity were found for lottery draws, $\chi^2(3, N = 994) = 79.32, p = .001$, scratch tickets, $\chi^2(3, N = 999) = 170.03, p = .001$, and sports tickets, $\chi^2(3, N = 995) = 103.40, p = .001$. As can be seen in Table 2, there is an increasing linear trend with the probable pathological group indicating the highest use (combined occasional and regular categories) for scratch tickets (75.0%), sports tickets (60.7%) and lottery draws (59.3%), compared with at-risk (61.8%, 29.4%, 35.3%, respectively) and social gamblers (66.7%, 18.1%, 26.9%, respectively). Although chi-square analyses could not be reliably computed due to small cell sizes, examination of the data revealed that frequency of use differed according to gambling severity. Regular, weekly participation, occurred more often among those falling within the at-risk and probable pathological groups. More specifically, probable pathological gamblers reported playing scratch tickets (17.9%) and lottery draws (14.8%) on regular basis more than social gamblers (2.9% and 1.4% respectively) and at-risk gamblers (7.4% and 1.5% respectively). For sports lottery participation, at-risk (7.4%) and probable pathological gamblers (7.1%) were similar in their rates of participation (regular use) but differed significantly from social gamblers (2.8%).

Table 1. Past year participation in gambling activities

	Social gambler ¹ n = 647		At-risk gambler ² n = 68		Probable pathological gambler ³ n = 28	
	Never	Regular	Never	Regular	Never	Regular
Cards**	42.8%	8.6%	17.6%	35.1%	25.9%	37.0%
Wager on sports	71.3%	7.3%	5.2 %	47.1%	21.4%	32.1%
Sports lottery	86.0%	3.6%	68.7%	20.9%	22.2%	25.9%
Draws/scratch**	46.4%	5.6%	39.7%	47.1%	11.1%	48.1%
VG/Poker**	84.5%	2.2%	54.4%	32.4%	37.0%	33.3%
Bingo**	59.2%	4.4%	54.4%	13.2%	38.5%	23.1%
Slot machine	88.3%	1.7%	74.6%	6.0%	59.3%	25.9%
Games of skill**	66.7%	6.3%	36.8%	47.1%	14.3%	46.4%
Another form	85.2%	3.6%	62.7%	20.3%	40.9%	45.4%

¹Social gambler: DSM-IV-MR-J score 0-1

²At-risk gambler: DSM-IV-MR-J score 2-3

³Probable pathological gambler: DSM-IV-MR-J score > 4

Occasional: Less than once a week

Regular: Weekly and daily

** Statistically significant at $p < .01$. N = 743

Table 2. Participation in lottery products

	Social gamblers n = 647	At-risk gamblers n = 68	Probable pathological gamblers n = 28	Total N = 743
Draw tickets				
Never	73.1%	64.7%	40.7%	77.6%
Occasional ^{a**}	25.5%	33.8%	44.5%	21.0%
Regular ^b	1.4%	1.5%	14.8%	1.4%
Scratch tickets				
Never	33.3%	38.2%	25.0%	45.8%
Occasional ^{a**}	63.8%	54.4%	57.1%	51.5%
Regular ^b	2.9%	7.4%	17.9%	2.7%
Sports tickets				
Never	81.9%	70.6%	39.3%	85.2%
Occasional ^{a**}	15.3%	22.0%	53.6%	12.5%
Regular ^b	2.8%	7.4%	7.1%	2.3%

^aOccasional Use = Less than once per week

^bRegular Use = Weekly and daily

** Statistically significant at $p < .01$

Mean Age of Onset

The overall mean age youths reported first having played scratch tickets, $F(3, 517) = 3.09$, $p = .03$, and sports tickets, $F(3, 150) = 4.13$, $p = .01$, differed significantly across gambling groups. An important distinction is made between playing the lottery (where someone else purchases the ticket) and actually playing and purchasing the ticket. Probable pathological gamblers had the youngest mean age of onset for playing scratch tickets, $M = 8.10$, $SD = 3.35$, lottery draws, $M = 9.94$, $SD = 3.34$, and sports tickets, $M = 10.56$, $SD = 3.12$. Social gamblers reported the oldest mean age of onset for *playing* lottery products, however the reported ages for scratch tickets, $M = 10.09$, $SD = 3.13$, lottery draws, $M = 11.02$, $SD = 3.16$, and sports lotteries, $M = 11.67$, $SD = 2.85$, remain considerably young, below 12 years of age. It is important to note that the differences while statistically significant are relatively small (approximately one year).

The overall mean age of the entire sample for their *first purchase* of lottery tickets was 12.24, $SD = 3.12$, (social gamblers $M = 12.48$, $SD = 3.18$; at-risk gamblers $M = 12.71$, $SD = 2.90$; probable pathological gamblers $M = 12.34$, $SD = 3.06$). Although no appreciable differences between the groups were found for age of first purchasing lottery tickets, probable pathological gamblers reported the youngest mean age of onset compared to the other groups (scratch tickets, $M = 11.94$; $SD = 3.14$; sports lotteries, $M = 12.09$; $SD = 3.29$, and lottery draws, $M = 13.00$; $SD = 2.40$). Of most importance is that all groups reported purchasing tickets when they were significantly below the legal age.

Beliefs Regarding Probability of Winning Money on the Lottery and Perception of Skill Involved

To understand participants' interest in playing the lottery and cognitive distortions commonly found amongst gamblers, perceptions concerning the probabil-

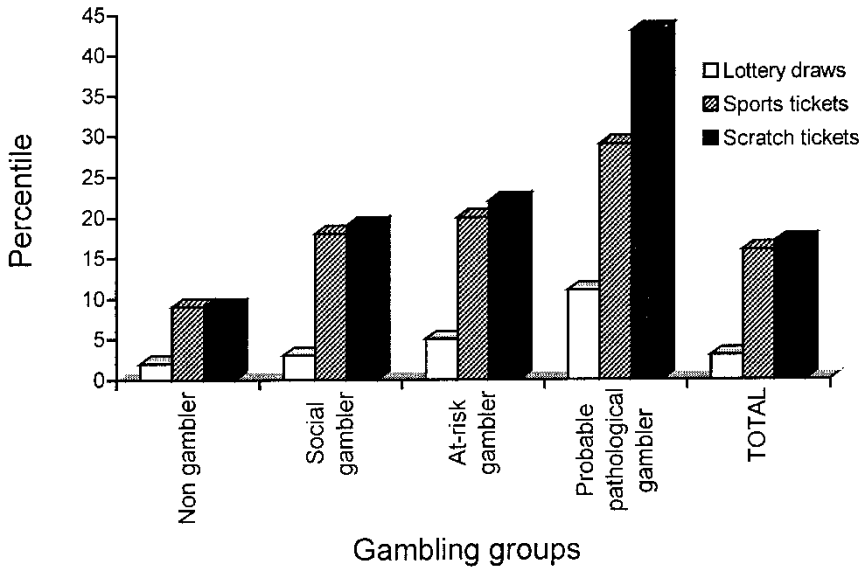


Figure 1. Participants' perceptions regarding probability of winning the lottery

ity of winning the lottery and the perceived amount of skill involved in lottery play was ascertained. Categories were regrouped to examine perceived frequency of winning a large prize playing the lottery. Significant gambling group differences were found for scratch tickets, $\chi^2(3, N = 994) = 26.473, p = .001$, and sports tickets, $\chi^2(3, N = 983) = 15.936, p = .001$. Of all the lottery products, youths reported scratch tickets (17.3%) to have the greatest potential to win money compared to lottery draws (2.8%) and sports tickets (16.4%) regardless of gambling severity. A linear increase across gambling groups was found with the perception that among probable pathological gamblers there is a high probability of winning money (see Figure 1): 42.9% of probable pathological gamblers believed that they have a good chance of winning money playing scratch tickets compared to 9.2% of non-gamblers, 18.8% of social gamblers and 22.4% of at-risk gamblers.

Significant gambling group differences were found in youths' perception of the amount of skill (on a 7-point Likert scale) necessary to win on all three types of lottery products—lottery draws, $F(3, 959) = 6.29, p = .001$, scratch tickets, $F(3, 959) = 3.12, p = .03$, and sports tickets, $F(3, 959) = 6.84, p = .001$. All youths reported that sports tickets, $M = 3.85, SD = 2.02$, require the most skill compared to lottery draws, $M = 2.14, SD = 1.57$, and scratch tickets, $M = 1.86, SD = 1.41$. This is predicated upon the perceived knowledge of sports team and players. Interestingly, non-gamblers reported that all three types of lottery tickets require less skill for winning than youths who gamble. The perception of skill involved in all lottery products was found to have increased according to gambling severity, with the at-risk and probable pathological gamblers having the greatest misperceptions.

Lottery Ticket Purchases and Gambling Behaviour

Significant differences among youths based upon their gambling severity were found for those who reported *specifically* going to the local convenience store to purchase lottery tickets, $\chi^2(3, N = 569) = 41.19, p = .001$, with the at-risk (61.2%) and probable pathological gamblers (60.9%) reporting the highest rates for occasional and regular visits compared to 32.0% of social gamblers. Although chi-square analyses could not be reliably computed due to small cell sizes, the percentage of reported visits to the store specifically to purchase lottery tickets increased as a function of gambling severity, with 13% of probable pathological gamblers reporting engaging in this behaviour most frequently (weekly and daily), compared to 2.5% of social gamblers and 4.1% of at-risk gamblers. Similarly, gambling severity appears to be related to impulse purchasing. As the level of gambling severity increased, participants were more likely to report purchasing a ticket as a result of seeing it displayed on the store counter, with 85.7% of probable pathological gamblers reporting that they were more likely to purchase a ticket if displayed on the sales counter compared to 60.8% of social gamblers and 73.3% of at-risk gamblers, $\chi^2(3, N = 382) = 18.59, p = .001$.

Of those youths who reported having purchased a lottery ticket, significant differences across levels of gambling involvement were found, $\chi^2(3, N = 383) = 16.81, p = .001$, with at-risk (71.1%) and probable pathological gamblers (81.1%) reporting that they would immediately scratch their lottery tickets compared to 46.7% of social gamblers.

Of the total sample, 13.0% of youths reported that they regularly return to purchase more tickets if they had won on a previous ticket, with only 2.2% reporting they would purchase additional tickets if they lost. A linear increase across gambling severity was noted with probable pathological gamblers reporting they would regularly return to purchase more tickets if they won (39.1%) compared to at-risk gamblers (27.1%) and social gamblers (11.4%), $\chi^2(3, N = 560) = 28.59, p = .001$. Chasing behaviours have been typically associated with pathological gambling. Compared to social gamblers (0.7%) and at-risk gamblers (6.4%), probable pathological gamblers (26.1%) reported that they would regularly return to purchase additional tickets if they had lost, $\chi^2(3, N = 559) = 65.81, p = .001$.

Familiarity and costs associated with a gambling activity are likely important factors influencing gambling acquisition. A significant increase in participants' willingness to purchase a ticket with an increased price was found by gambling severity, $\chi^2(3, N = 515) = 40.88, p = .001$. A linear trend was noted such that the greater the gambling severity the more youths reported being willing to purchase their favorite ticket even if the price increased. Probable pathological gamblers (78.3%) and at-risk gamblers (65.1%) reported being the most willing to purchase a more expensive ticket, compared to social gamblers (35.5%).

Significant group differences were also noted across levels of gambling severity with respect to how often they report playing the same lottery game, $\chi^2(3, N = 560) = 19.29, p = .001$. A linear trend across groups was noted with respect to regular playing the same lottery ticket (either draws or scratch cards), with 59.1% of probable pathological gamblers, 36.7% of at-risk gamblers and 26.7% of social gamblers reporting doing so. A significant difference, by gambling severity was found for youths' willingness to purchase a scratch ticket with which they are unfamiliar. Yet, as expected, pathological gamblers are also

willing to play both familiar and unfamiliar games. A linear increase was found across levels of gambling severity with probable pathological gamblers (64.3%) reporting being the most willing to purchase an unfamiliar scratch ticket followed by social gamblers (41.1%) and at-risk gamblers (41.2%) the least willing to try a novel ticket, $\chi^2(3, N = 984) = 57.31, p = .001$.

Discussion

The appeal of the lottery for youths in general and youths with gambling problems more specifically, is likely due to its easy accessibility, social approval of a government sponsored gambling activity, misperceptions regarding the probability of winning, a lack of parental concerns over lottery participation by their underage children and the perception that it is an innocuous activity with few negative consequences (Derevensky *et al.*, in press). There is further evidence that underage youths not only purchase and play lotteries but that their parents and other adult relatives are aware of such activities and purchase tickets for them for special holidays (Derevensky and Gupta, 2001; Felsher *et al.*, 2004).

In spite of legal restrictions, youths with severe gambling problems had the highest occasional and regular participation rate for playing all three types of lottery tickets (i.e., lottery draws, scratch tickets and sports tickets). More specifically, probable pathological gamblers reported the highest regular participation (compared to social gamblers and at-risk gamblers) with scratch tickets followed by lottery draws and sports tickets.

In order to understand gambling preferences amongst youths, lottery participation during the past twelve months was compared to other forms of gambling. Furthermore, youths rated the desirability of various gambling activities in order to examine their preferences. Social and at-risk gamblers reported interest in playing scratch tickets whereas probable pathological gamblers reported their greatest overall participation in sports wagering, followed by lottery draws and scratch tickets. Gupta and Derevensky (2000), in their clinical work, found that lottery wagering relating to sporting events are highly problematic for youths, since they reported that betting on the outcome of a sporting event provided a perceived sense of skill and sense of heightened arousal. Interestingly, youths reported this physiological response regardless of whether they win or lose.

Youths with gambling problems reported occasionally playing sports lotteries most frequently. Nevertheless, compared to other forms of gambling activities, scratch tickets (48%) had the greatest regular (weekly and daily) participation rate. All youths, independent of gambling severity reported scratch tickets to be an appealing form of gambling activity. It is not surprising that probable pathological gamblers play scratch tickets more frequently given the structural characteristics of the game (immediate intermittent reinforcement, colour, game familiarity, etc) (Derevensky and Gupta, 2001).

Perception of Skill and Chance of Winning a Prize Playing the Lottery

Previous research has shown that pathological gamblers have erroneous beliefs and cognitive distortions regarding the probability of winning (Derevensky *et al.*, 1996; Herman *et al.*, 1998; Wynne *et al.*, 1994). Erroneous beliefs of pathological gamblers regarding the probability of winning the lottery and the perceived

amount of skill involved in lottery ticket playing likely accounts for its popularity. Overall, youths reported that they believe that they have the best chance of winning a prize playing scratch tickets, followed by sports tickets and lottery draws. Since scratch tickets are frequently marketed with the probability of winning on the ticket itself, it is not surprising that youths are misled into believing that they have a good chance of winning a prize (intermittent schedules of reinforcement likely contribute to this belief). Compared to other gambling groups, youths with gambling problems were significantly more likely to report believing that they have a good chance to win a prize playing the lottery, particularly with scratch tickets. Despite the fact that youths believe their chances of winning a prize are the greatest with scratch tickets, all youths reported that sports tickets require the greatest amount of skill. Sports tickets are perceived as a skill based activity as winnings are allocated dependent on the player's knowledge of sports teams and their ability to cover the spread. While non-gamblers, social gamblers and at-risk gamblers reported that lottery draws require slightly more skill than scratch tickets (see Langer, 1975: choosing lottery numbers fosters an illusion of control), youths with gambling problems surprisingly reported that they perceive success on scratch tickets to involve considerably more skill than for lottery draws. Furthermore, that fact that an individual has the opportunity to select a ticket from amongst a vast array of games when playing scratch tickets may create a perceived illusion of skill for the probable pathological gambler. It is important to note that while significant differences were found between groups for the amount of perceived skill, their overall ratings were relatively low.

The average age at which youths reported having started playing lottery tickets was approximately age 12 despite legal prohibitions. The results further demonstrate that individuals who meet the criteria for pathological gambling reported a significantly earlier age of onset than social gamblers and at-risk gamblers for participation with scratch tickets (8 years), lottery draws (10 years) and sports tickets (11 years). Given that lottery tickets are perceived as a form of innocuous, relatively harmless entertainment and are easily accessible, one can assume that age of onset for playing the lottery would be lower than that found for participation in other forms of gambling (e.g., casino type activities). Nevertheless, legislators around the world have generally deemed that gambling by children and adolescents is inappropriate. As such, the ease at which underage adolescents can purchase lottery tickets and the overall lack of enforcement in many jurisdictions is a cause for concern. There is ample research which has shown that early onset of gambling behaviour is predictive of more severe future problems (Custer and Milt, 1985; Dell *et al.*, 1981) with retrospective studies of problem gamblers reporting the onset of their pathological behaviours to have initially begun between the ages of 10–11 (Gupta and Derevensky, 1998a; Wynne *et al.*, 1996).

Lottery Participation and Gambling Behaviour

Consistent with previous research findings (e.g., Canadian Foundation on Compulsive Gambling, 1994; Felsher *et al.*, 2004; Govoni *et al.*, 1996; Gupta and Derevensky, 1998a; Wood and Griffiths, 1998), youths reported few if any difficulties in purchasing lottery tickets, independent of gambling severity. As expected, more than half of youths with gambling problems or at-risk for

developing a gambling problem reported going to the store *specifically* to purchase lottery tickets, with probable pathological gamblers reporting going to the store on a regular basis more often for the primary purpose of purchasing a lottery ticket. Not only are youths with gambling problems more likely to go to the store specifically to purchase lottery tickets, the results suggest that they are more impulsive in their lottery purchases and in their playing behaviour. Adolescents with gambling problems reported that they were also more likely to purchase a lottery ticket as a result of seeing it advertised on the store counter. In addition, they reported that when purchasing lottery tickets they were more likely than social gamblers and at-risk youths to scratch the tickets immediately rather than waiting until they arrived at home.

Previous studies have found that individuals with gambling problems demonstrate chasing behaviours; continuing to gamble in order to recoup lost wagers. Generally, when one discusses chasing behaviour it is in reference to slot machine or casino games. Nevertheless, the current results suggest that youths with gambling problems demonstrate chasing behaviour even when playing the lottery. Compared to social gamblers and at-risk gamblers, youths with gambling problems reported that they were more likely to return to the store to purchase tickets both when they had won and/or lost money. A significant concern is the frequency with which probable pathological gamblers reported regularly returning to the store to purchase more tickets. These youths are attempting to recoup losses by purchasing more tickets. Anecdotal evidence from focus groups suggests that the more activities on the scratch ticket the more pleasure the individual receives. The act of scratching the tickets and excitement and arousal derived reinforces their behaviour.

Not only do youths with gambling problems report a preference for lottery products compared to other gambling activities, they frequently reported having a favourite ticket. Familiarity of gambling products is important in terms of gambling acquisition (Griffiths and Dunbar, 1997; Parke and Griffiths, 2001). The gambling industry creates familiarity for products by associating tickets with celebrity images, using brand or licensed names and building upon player's previous experiences (Parke and Griffiths, 2001). Adolescents with gambling problems were found to be undeterred from purchasing their favourite lottery ticket independent of price increases. As well, they reported regularly purchasing and playing the same type of lottery ticket. Similar to past research findings of adult pathological gamblers who report having their favourite slot machine or table at the casino (superstitious behaviour), youth lottery players have their preferred lottery ticket. While familiarity with a specific lottery ticket is important for youths with gambling problems, they seem undeterred if presented with an unknown game that may be particularly attractive. Novel lottery tickets may be appealing for probable pathological gamblers given that these youths continue to seek excitement and are greater risk-takers (Kim and Grant, 2001). The structural characteristics of scratch cards (e.g., color, games, reinforcement schedules, etc) along with their novelty make these tickets particularly attractive (see Derevensky and Gupta, 2001, for a comprehensive discussion).

Familiarity of the game was found to be an important determinant for youths in general, however, this was found to be more important for youths with gambling problems. Adolescent social gamblers tend to purchase tickets more indiscriminately without much consideration as to the reasons they actually selected one ticket over another. However, those with gambling problems are

more likely to purchase the same scratch lottery ticket given that they work on an intermittent reward schedule. These youths may be misled into believing that the next ticket could be the winning ticket (analogous to slot machine playing although the speed and frequency are not as rapid). Subsequently when they win, they believe that it has something to do with their ability to control events or outcomes (e.g., selecting the best ticket) independent of previous experiences (Derevensky *et al.*, 1996). Griffiths and Wood (1999) contend that the attractiveness of such tickets is a result of the minimal amount of time between the initial scratching of the ticket and the observation of success or failure. As a result, the *losing period* is brief and the pathological gambler can immediately scratch another ticket with minimal time for financial considerations. Griffiths and Wood (1999) concluded that the amount of money being gambled is constrained only by the speed at which the individual can scratch off the symbols as well as his/her financial resources.

Conclusions

Using our established criteria for assessing adolescent gambling problems (see Derevensky *et al.*, 2003, for a comprehensive discussion concerning measurement issues), the results clearly suggest that a small but identifiable number of youths (2.8%) have a significant gambling problem with a larger percentage of youths (6.8%) at-risk for developing a gambling problem. A recent province-wide study using the SOGS-RA has reported higher rates of probable pathological gambling (5.8%) amongst youths in Ontario (Adalf and Ialomiteanu, 2000). While the current prevalence rates are lower than normally reported, the present study used a conservative measure (DSM-IV-MR-J) of youth pathological gambling (Derevensky and Gupta, 2000). Sixty-five percent of the sample is considered to be social gamblers. These numbers highlight the prevalence of gambling involvement of today's youths. The prevalence rates of serious gambling problems while somewhat lower than typically found, nevertheless remain a significant concern.

It is often difficult for youth gamblers to access certain, more restrictive and controlled forms of legalised gambling activities (e.g., casinos tend to be more vigilant in enforcing age restrictions). As such, it is not surprising that youths elect to participate in lottery activities since lottery playing (e.g., scratch tickets), is one of the few potentially addictive behaviours that youths are exposed to on a daily basis that is supported, endorsed and promoted by the government with few parents being aware or concerned of the potential short-term and long-term negative consequences. The current perception is that pathological gambling occurs with *hard forms* of gambling activities (e.g., casino games, electronic gaming machines, horse betting), whereas lotteries are generally perceived as an innocuous form of entertainment and not even gambling per se. While youth gamblers have participated in multiple gambling activities, the current study established that youths with gambling problems gamble primarily on lottery products and exhibited similar pathological gambling behaviour (e.g., chasing) as those individuals addicted to other forms of gambling venues.

The hypothesis that lottery tickets are a gateway to other gambling venues and high-risk behaviours must be cautiously interpreted. However, the results suggest that youths learn about the exciting properties of gambling via lottery products. In view of the fact that youths with gambling problems have managed

to engage in serious gambling behaviour with lottery products, policy makers are strongly encouraged to rigorously enforce existing statutes prohibiting underage youths from purchasing lottery tickets. A recent change in the types of games employed by the lottery corporations has transformed what typically began as a passive draw with a large prize, to more engaging, challenging and active lottery products. Similar to adults, many youths likely perceive the lottery as a way to solve current and future financial problems. With the advent of new high technology and licensed lottery products under development, specific safeguards must be put in place to curb and monitor the introduction of products particularly attractive to youths.

Gambling problems amongst youths, often referred to as the 'hidden addiction', have not received the same attention in schools as other potentially addictive behaviours (e.g., alcohol abuse, cigarette smoking and drug use). Prevention programs must be accompanied by a public education-awareness program encouraging parents and adults to be attentive to the types of gambling-related problems experienced by adolescents (Derevensky *et al.*, in press). Further research efforts and prevention programs need to be initiated in trying to modify the lottery purchasing and playing behaviour of youths. Given that many youths with gambling problems begin by playing and purchasing lottery tickets awareness of this issue is crucial.

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