

Suicidality and Depression Among Youth Gamblers: A Preliminary Examination of Three Studies

LIA NOWER,¹ RINA GUPTA,² ALEX BLASZCZYNSKI³ & JEFFREY DEREVENSKY²

¹School of Social Welfare, University of Missouri-St Louis, USA; ²International Centre for Youth Gambling Problems and High-risk Behaviours, McGill University, Canada; ³Department of Psychology, University of Sydney, Australia

ABSTRACT Both suicide and problem gambling among youth are two growing areas of public health concern, though studies have yet to characterise the relationship between these issues. Youth report higher prevalence rates of problem gambling than adults, but no studies to date have investigated whether they are likewise prone to higher risks of gambling-related suicidality. This article explores the relationship of depression, suicidality, and problem gambling in youth in three studies of middle and high-school students (total N = 3,941; males n = 1,937, females n = 2,004) conducted in 1996, 2000, and 2001 in Quebec and Ontario. All studies reported significantly higher rates of suicidality among problem and pathological gamblers as compared to non-gamblers and social gamblers, irrespective of gender, grade, or level of depression. The implications for future investigations are discussed.

Introduction

Pathological gambling has become a recognised major public health issue. It is characterised by a loss of control over gambling behaviour that leads to significant adverse consequences across multiple areas of functioning: interpersonal, psychological, social, legal, and financial (American Psychiatric Association, 2000). In particular, two areas of growing concern are adolescent participation in gambling and the implications of that behaviour for later adult involvement.

Adolescence is an important formative period in the development of problem gambling. Most youth participate in some form of gambling activity during high school (Gupta and Derevensky, 1998a; Wynne *et al.*, 1996), and the majority of adult problem gamblers report having commenced gambling either during childhood or early adolescence (Custer and Milt, 1985; Griffiths, 1995; Gupta and Derevensky, 1998a; Wynne *et al.*, 1996). Studies in the USA, Canada, the United Kingdom, and Australia have reported that 24–40% of adolescents gamble weekly, 10–14% are at-risk for developing gambling problems, and 2–8% meet diagnostic criteria for pathological gambling (Delfabbro and Thrupp, 2003; Fisher, 1999; Griffiths, 1995; Hardoon and Derevensky, 2002; National Research Council, 1999; Shaffer and Hall, 1996). The median prevalence rate for adolescent pathological gambling has been reported at 5%—three times greater than the 1.5% median figure suggested for adults (National Research Council, 1999).

Traditionally, adolescents tend to minimise, fail to perceive, or dismiss the seriousness of the adverse consequences of their gambling behaviour (Griffiths, 1995). As a result, they are reluctant to enter treatment despite their relatively high prevalence rates (Productivity Commission, 1999). Such exposure to gambling during adolescence may exert a critical formative influence on impaired control and the pattern of subsequent adult gambling (Custer and Milt, 1985; Gupta and Derevensky, 1998a).

Several studies have found a co-occurrence of mood disorders among youth gamblers (Arbinaga, 2000; Gupta and Derevensky, 1998b; Vitaro *et al.*, 1999). In addition, female youth gamblers report significantly higher levels of depression when compared to males, though depression is highly correlated to the level of gambling involvement for both genders (Gupta and Derevensky, 1998b). Depression is also a frequently reported risk factor for suicide among youth (Allison *et al.*, 2001; Aoki and Turk, 1997; Pagliaro, 1995).

There is considerable variation in suicide rates geographically. However, epidemiological studies suggest a population lifetime prevalence rate of 5–18% for suicidal ideation, and 1–5% for actual attempts (Weissman *et al.*, 1999). The overall mean rate of completed suicides has been relatively stable across Western countries with estimates of 12–13 per 100,000 (or 0.01%) found in Australia, New Zealand, the United Kingdom, and the USA (Weissman *et al.*, 1999). Nevertheless, there is growing concern over the number of studies that suggest youth suicide rates, particularly among adolescent and young adult males, have doubled over the last ten years despite static rates of suicide in other age groups (Cantor *et al.*, 1999; Hawton and Fagg, 1992; McClure, 1994). Among adolescents, yearly surveys of 39 countries conducted by the World Health Organization consistently rank suicide as the third leading cause of death behind transport accidents and cancers for adolescents and young adults aged 15 to 34 years (WHO, 2001). More specifically, a large-scale study in the US conducted by the Centers for Disease Control estimated that 19% of high school students had seriously considered attempting suicide in the past year, 15% made a specific plan, 8.8% reported making an attempt and 2.6% made a serious attempt requiring medical attention (Grunbaum *et al.*, 2002). Other studies report that adolescent females attempt suicide at three times the rate of males (Aoki and Turk, 1997), though males are over-represented among deaths due to the use of firearms and more lethal means (Werenko *et al.*, 2000).

It is well established that the motivation for suicidal behaviour is multi-factorial in origin. Schneidman (1996) suggests that suicide represents the ultimate expression of psychological distress, produced by a sense of individual hopelessness/helplessness and a drive to escape intense psychic pain. Studies of youth suicide risk have found that stressful life events, interpersonal and familial difficulties, parental divorce, maladaptive parenting, childhood maltreatment and/or sexual abuse, family history of suicide, and psychopathology, psychiatric disorders, and substance abuse predispose youth to suicidality (Gould and Kramer, 2001; Gould *et al.*, 2003; Johnson *et al.*, 2002; Kelly *et al.*, 2002; Marttunen and Pelkonen, 2001).

For both adolescents and adults, pathological gambling produces a wide range of negative consequences that result in significant psychological distress. Disrupted family relationships, financial and legal pressures, deteriorating work and school performance, truancy, aggression, and delinquent or criminal behaviours to finance gambling coalesce in an ever-narrowing 'spiral of options'

Table 1. Students by gender, grade, age and location

	Total	Male	Female	Grades	Age	Location
Study 1	817	417	400	7, 9, 11	12-17	Quebec
Study 2	982	435	547	7-11	10-17	Quebec
Study 3	2,142	1,085	1,057	7-12	11-20	Ontario
Total	3,941	1,937	2,004			

(Lesieur, 1979), which subsequently generates depression and a sense of hopelessness, helplessness, and psychic pain—factors that, in combination, are also associated with suicide risk (Blaszczynski and Farrell, 1998). As a result, it is not surprising that high rates of suicidal ideation and attempts are reported in samples of problem gamblers in community, Gambler's Anonymous, treatment, and hotline settings (Frank *et al.*, 1991; Maccallum and Blaszczynski, 2003; Petry and Kulik, 2002; Sullivan, 1994).

There are relatively few estimates of the rate of completed suicides among problem gamblers. Blaszczynski and Farrell (1998) identified 44 gambling-related suicides in a psychological autopsy review of all suicide records between 1990 and 1997 held by the Victorian State Coroner in Australia. This figure represented 1.7% of all documented suicides that took place in Victoria during the period 1994-97 (Productivity Commission, 1999). In light of data indicating that suicide rates have increased dramatically among youth over the last two decades, it is reasonable to suggest that gambling problems might prove an additional cumulative risk factor. A recent study with a small sample of 97 adolescent substance abusers found that those who began gambling at a young age were more likely than their peers to require psychiatric treatment and to report a history of suicide attempts, depression, conduct disorder, and other personality disorders (Kaminer *et al.*, 2002). Consequently, it is important to explore the relationship of gambling and suicide in larger stratified samples to provide information for public policy, preventative and early intervention strategies for adolescents. If problem gambling is correlated with suicidality in youth, it is reasonable to expect that high rates of suicidality would be evident among youth problem gamblers, particularly those who also suffer from depression.

The purpose of this article is to compare the relationship of suicidality, depression, and gambling severity youth in three separate adolescent samples. It is hypothesised that youth with higher levels of gambling severity will likewise report higher levels of depression, suicidal ideation, and suicide attempts.

Method

Participants

The sample included a total of 3,941 students (1,937 males; 2,004 females) aged 12 to 18 who participated in one of three studies examining problem gambling among adolescents. Samples were collected in Quebec in 1996 and 2000 and in Ontario in 2001. Schools were ethnically and socio-economically diverse and representative of students in area schools (see Table 1). It should be noted that

school boards in Quebec and Ontario refused to permit the researchers to ask questions regarding ethnicity. In addition, Study 1 failed to record age, therefore grade level, common to all three studies, was used as a proxy for age.

Measures

All studies used a variety of questionnaires, containing multiple self-report measures. Participants responded in a group setting and remained anonymous. The present comparison is limited to the following measures.

Gambling severity. Studies 1 and 2 used the DSM-IV-J (Fisher, 1992), a 12-item instrument with nine scored items, patterned after the DSM-IV criteria for pathological gambling. The DSM-IV-J has been widely used in youth gambling research and has been found to effectively discriminate pathological gambling in youth up to 21 years (Derevensky and Gupta, 2000; Fisher, 1992; Gupta and Derevensky, 1998a, 1998b). Study 3 utilised the DSM-IV-MR-J (Fisher, 2000), a revised version of the original instrument. Both instruments require endorsing a minimum four of nine items to be identified as a pathological gambler. For all three studies, frequencies and descriptive statistics were used to establish cut-offs that reflected the natural break in the distribution of scores. Internal consistency reliability was acceptable for scales of this size (Cronbach's $\alpha = .71-.79$). Statistical findings, combined with a theoretical interest in investigating sub-threshold gamblers (three symptoms) as a target for early intervention, informed the current classification: (1) non-gamblers (no past-year gambling); (2) social gamblers (0-2 symptoms); (3) problem/pathological gamblers (3 + symptoms).

Depression. The Reynolds Adolescent Depression Scale (RADS) (Reynolds, 1987) is a 30-item scale of depressive symptomatology which has been widely used with youth. It has high internal consistency (Cronbach's $\alpha = .90-.96$), high test-retest reliability (.80), well documented concurrent validity and a clinical cut-off score of 77.

Suicide ideation and attempts. Participants were asked two specific questions relating to suicidality: (1) 'Have you ever thought about attempting suicide?' and (2) 'Have you ever attempted suicide?' These questions were included in a larger gambling assessment which also inquired about gambling frequency, types of activities, wagers, familial and peer influences, borrowing and stealing of money, motivations for gambling, and parental history of gambling and substance use.

Procedure. Instruments in each of the three studies were group administered and a research assistant was available to help clarify ambiguous items. The current analysis compares findings from each of the three studies related to depression, suicidality, and gambling problem severity.

Results

Univariate and Bivariate Analyses Study 1

Study 1, conducted in Quebec in 1996, had a total sample of 817 participants. Of those, 19.2% ($n = 157$) were categorised as non-gamblers, 72.8% ($n = 595$) as

Table 2. Distribution across studies by gender and level of gambling severity

Gender	Non-gamblers			Social gamblers			Problem or pathological gamblers		
	Study 1	Study 2	Study 3	Study 1	Study 2	Study 3	Study 1	Study 2	Study 3
Male (n)	18.0% (75)	31.0% (135)	26.9% (292)	69.3% (289)	50.8% (221)	66.0% (716)	12.7% (53)	18.2% (79)	7.1% (77)
Female (n)	20.5% (82)	49.0% (268)	46.4% (490)	76.5% (306)	41.1% (252)	51.2% (541)	3.0% (12)	4.9% (27)	2.5% (26)

social gamblers, and 8.0% ($n = 65$) as problem/pathological gamblers. The male:female ratio for problem/pathological gamblers was approximately 4:1. The distribution of participants by gender and level of gambling severity are presented in Table 2.

Depression. Overall, 13.3% ($n = 109$) of the students met the clinical criteria for depression. Females reported significantly higher rates of depression than males, with nearly 2.5 times as many females (19.0%) as males (7.9%) endorsing a sufficient number of symptoms to meet the clinical threshold, $\chi^2(1, N = 817) = 21.70, p < .01$. Developmentally, there were higher levels of depression reported among older adolescents, $F(2, 814) = 11.23, p < .01$. A post hoc analysis (Bonferroni) revealed that students in grades 9 ($M = 60.77, SD = 13.67$) and 11 ($M = 61.93, SD = 13.35$) reported significantly higher levels of depression than students in grade 7. Across gambling categories, problem and pathological gamblers reported significantly higher rates of depression than non-gamblers and social gamblers, $F(2, 812) = 5.98, p < .01$ (see Table 3).

Suicidal ideation. Of all participants in Study 1, 29.6% ($n = 242$) indicated having considered suicide. Youth who met clinical criteria for depression were significantly more likely to report suicide ideation, $\chi^2(1, N = 816) = 154.58, p < .01$, with females (36.5%) reporting significantly higher rates of ideation than males (23.0%), $\chi^2(1, N = 816) = 17.61, p < .01$. Suicidal ideation also differed significantly by grade level. A higher than expected percentage of students in Grade 11 and a lower percentage of youth in Grade 7 reported thoughts of suicide, $\chi^2(2, N = 816) = 26.48, p < .001$.

Across gambling groups, significantly more problem/pathological gamblers (49.2%) and fewer non-gamblers (20.4%) and social gamblers (29.9%) reported suicidal ideation, $\chi^2(2, N = 816) = 18.21, p < .001$ (see Table 4).

Suicide attempts. A reported 5.4% ($n = 44$) of participants indicated they had made a suicide attempt. A significant number of those individuals reached the clinical threshold for depressive symptomatology on the RADS, $\chi^2(1, N = 817) = 84.19, p < .001$. A chi-square comparison found a significantly higher rate of attempts among females (7.8%) when compared to males (3.1%), $\chi^2(1, N = 817) = 8.60, p < .01$. Unlike the findings with suicidal ideation, there were no significant differences by grade level.

Table 3. Depression and gambling severity differences

Sample	Depression severity score ^a											
	Study 1***			Study 2**			Study 3***			Study 3***		
	Depressed	M	SD	Depressed	M	SD	Depressed	M	SD	Depressed	M	SD
Non-gambler (n)	9.6% (15)	57.88	14.14	15.4% (62)	61.05	15.09	11.5% (90)	58.74	13.29	11.5% (90)	58.74	13.29
Social gambler (n)	13.3% (79)	59.65	13.67	17.1% (81)	61.11	15.66	12.7% (160)	58.18	13.89	12.7% (160)	58.18	13.89
Problem/pathological gambler (n)	23.1% (15)	64.88	13.70	24.5% (26)	65.23	14.69	20.4% (21)	63.99	12.95	20.4% (21)	63.99	12.95

^a Clinical depression threshold ≥ 77 .

*** $p < .001$.

** $p < .05$.

Table 4. Distribution of suicide ideation and attempts across studies by level of gambling severity

	Non-gamblers			Social gamblers			Problem or pathological gamblers		
	Study 1	Study 2	Study 3	Study 1	Study 2	Study 3	Study 1	Study 2	Study 3
Ideation (n)	20.4% (32)	25.6% (103)	13.9% (109)	29.9% (178)	27.1% (128)	16.9% (212)	49.2% (32)	36.8% (39)	28.2% (29)
Attempts (n)	3.8% (6)	-	2.0% (16)	5.9% (35)	-	3.1% (39)	4.6% (3)	-	13.6% (14)

In addition, chi-square comparisons found no significant differences in the relative proportion of respondents by gambling severity who reported suicide attempts in the group as a whole, $\chi^2(1, N = 817) = 2.82, p = .57$ or by gender, $\chi^2(2, n = 417) = 1.51, p = .47$ (male), $\chi^2(2, n = 400) = 1.65, p = .44$ (female).

Study 2. Study 2 was conducted in Quebec in 2000. Of the total sample ($N = 982$), non-gamblers constituted 41.0% ($n = 403$), social gamblers, 48.2% ($n = 473$), and problem/pathological gamblers, 10.0% ($n = 106$). As presented in Table 2, the male:female ratio for problem/pathological gamblers was approximately 3:1.

Depression. On average, 17.2% ($n = 169$) of participants reached the criterion for clinical depression. More than twice as many females, 22.5% ($n = 123$) as males, 10.6% ($n = 46$) met the clinical symptom threshold, $\chi^2(1, N = 982) = 24.13, p < .01$. There were no significant differences found in depression level by grade (Table 3). Problem/pathological gamblers also reported higher levels of depression than non-gamblers or social gamblers, $F(2, 979) = 3.47, p = .03$.

Suicidal ideation. More than 25% of all participants (27.5%, $n = 270$) endorsed having thoughts of suicide. Youth who met clinical criteria for depression were significantly more likely to report suicide ideation, $\chi^2(1, N = 816) = 154.58, p < .01$. Similarly, females were nearly twice as likely as males to report suicide ideation (34.4% v. 18.9%), $\chi^2(1, N = 979) = 29.44, p < .01$. There were also significant differences in suicidal ideation by grade, $\chi^2(4, N = 979) = 12.86, p = .01$, with students in grades 8 and 11 reporting the highest rates.

Across levels of gambling severity, the relative proportion of respondents in each group failed to differ significantly as a whole (Table 4). However, when analysed by gender, problem/pathological gamblers were over-represented and non-gamblers and social gamblers were under-represented among both males, $\chi^2(2, n = 434) = 7.05, p = .03$, and females, $\chi^2(2, n = 545) = 8.80, p = .01$, when reporting thoughts of self-harm.

Suicide attempts. In this sample, only 268 of the 982 participants responded to the question, therefore this variable was excluded from analysis.

Study 3. Conducted in 2001 in Ontario, Study 3 ($N = 2,142$) classified 36.5% ($n = 782$) as non-gamblers, 58.7% ($n = 1257$) as social gamblers, and 4.8% ($n = 103$) as problem/pathological gamblers. The male:female ratio for problem/pathological gamblers was approximately 3:1 (Table 2).

Depression. Overall, 15.0% ($n = 248$) of this sample met the clinical criteria for depression. Females reported significantly higher rates of depression than males, with 13.2% of females compared to 10.0% of males meeting the clinical threshold, $\chi^2(1, N = 2142) = 5.04, p = .03$. By grade level, more students in grades 10 ($M = 60.12, SD = 13.99$), 11 ($M = 60.25, SD = 14.22$), and 12 ($M = 61.60, SD = 13.28$) and fewer students in grades 7 ($M = 55.98, SD = 12.72$) and 8 ($M = 55.67, SD = 13.33$) reached the clinical threshold for depression, $F(5, 2136) = 10.60, p < .001$. Across gambling categories, problem/pathological youth gamblers had significantly higher rates of depression than non-gamblers and social gamblers, $F(2, 2139) = 8.67, p < .001$ (see Table 3).

Suicidal ideation. Approximately 16.3% ($n = 350$) of participants reported thoughts of suicide, and a significant percentage of those with ideation also met criteria for clinical depression, $\chi^2(1, N = 2142) = 252.36, p < .001$. Consistent with the other studies, females (14.4%) were more likely than males (11.0%) to entertain thoughts of suicide, $\chi^2(1, N = 2142) = 5.64, p = .02$. There were also significant differences in suicidal ideation by grade, with younger students (grades 7 and 8) reporting the highest rates of suicide ideation, $\chi^2(5, N = 2123) = 45.35, p < .001$.

Across gambling categories, fewer non-gamblers (13.9%) and more social (16.9%) and problem/pathological (28.2%) gamblers reported thoughts of suicide, $\chi^2(2, N = 2123) = 14.51, p < .001$ (see Table 4). By gender, similar differences were noted in both males, $\chi^2(2, N = 1076) = 6.56, p = .04$, and females, $\chi^2(2, N = 1047) = 21.10, p < .001$. Notably, 50% of female problem/pathological gamblers reported suicidal ideation compared to only 16.3% of non-gambling females.

Suicide attempts. In this sample, 3.2% ($n = 69$) of participants reported a suicide attempt, with most meeting the clinical threshold for depression, $\chi^2(1, N = 2126) = 84.58, p < .001$. Chi-square comparisons revealed significantly higher rates of suicide attempts among females (4.1%) than males (2.4%), $\chi^2(1, N = 2126) = 4.95, p = .03$. Unlike the findings with suicidal ideation, there no significant grade differences, $\chi^2(5, N = 2126) = 9.56, p = .09$.

Across gambling groups, a significantly higher proportion of problem/pathological gamblers (13.6%) and lower proportion of non-gamblers (2.0%) and social gamblers (3.1%) reported suicide attempts, $\chi^2(2, N = 2126) = 39.75, p < .001$ (Table 4). However, when analysed by gender, problem/pathological gamblers were over-represented and social gamblers under-represented among males, $\chi^2(2, n = 1081) = 23.63, p < .001$; however, all gamblers were over-represented and non-gamblers under-represented among females, $\chi^2(2, n = 1045) = 32.97, p < .001$.

Logistic Regression

Suicidal ideation. To further explore the relation of measured variables to suicide ideation and attempts, the data from the three studies were pooled and dummy-coded, and a logistic regression was conducted to determine which independent variables (grade, gender, level of gambling severity, level of depression, study population) predicted suicidal ideation (yes/no). Since Study 1 only sampled students in grades 7, 9, and 11, data from the remaining grades were excluded for the regression analyses. Data screening led to the elimination of several outliers. As shown in Table 5, the analysis demonstrated a good fit between the model and the data ($\chi^2 = 505.27, df = 5, p < .001$). Of interest, only gender failed significantly to predict positive reports of suicidal ideation when controlling for other factors. In addition, younger students were more likely than older ones to report suicidal ideation (1.56 odds). Suicidal ideation was also significantly predicted by higher levels of depression (1.08 odds) and gambling severity (1.19 odds), and by participation in the Montreal versus Ontario studies (1.93 odds).

Table 5. Regression coefficients

<i>Suicidal ideation (N = 2,170)</i>			
Variable	b	Wald ^a	Odds ratio
Grade	0.441	13.64	1.56
Depression level	0.08	295.34	1.08
Gambling severity	0.173	18.57	1.19
Study location	0.658	26.66	1.93
<i>Suicidal ideation (N = 1,620)</i>			
Variable	b	Wald ^b	Odds ratio
Depression level	0.85	89.04**	1.09
Gambling severity	0.237	10.58*	1.27

^a Model chi-square: 505.27, *df* = 5, *p* < .001. All variables *p* < .001.

^b Model chi-square: 124.52, *df* = 5, *p* < .001. * *p* < .01. ** *p* < .001.

Suicide attempts. A second regression was conducted to determine the predictors of suicide attempts in Studies 1 and 3. This analysis also demonstrated good model fit: $\chi^2 = 124.52$, *df* = 5, *p* < .001 (see Table 5). Only higher rates of depression (1.09 odds) and higher levels of gambling severity (1.27 odds) were predictive of suicide attempts.

Discussion

Factors leading to suicide in youth are both complex and multi-factorial in origin. The present analysis provides an initial step in exploring the relationship between severity of adolescent gambling problems, depression and suicidal behaviours. The results from the three studies confirm the notion that adolescents with gambling problems are at heightened risk for both reported suicide ideation and attempts, largely independent of grade or gender. In addition, the positive association between gambling severity and suicidal ideation remains significant when controlling for level of depression.

Findings indicated significant geographical differences between the Montreal and Ontario studies and some notable differences between the studies conducted in Montreal. Reasons for those differences remain unclear and underscore the need for future longitudinal and geographical comparison studies. Both Quebec studies reported significantly higher rates of problem and pathological gambling among males (12.7%, 18.2%) than the Ontario survey (7.1%). In addition, problem and pathological gamblers in Quebec reported higher rates of suicidal ideation (49.2%, 36.8%) than those in Ontario (28.7%), though percentages in all three studies were approximately double the reported rates of ideation among non-gamblers and social gamblers. Significantly, more problem/pathological gamblers in both Study 1 (4.6%) and Study 3 (13.6%) reported attempting suicide, compared to non-gamblers (3.8% and 2.0% respectively) and social gamblers (5.9%, 3.1%). There were also reported differences between the two Montreal surveys, with participants in Study 1 endorsing higher rates of

social gambling among both males (69.3%) and females (76.5%) than in Study 2, conducted four years later (males = 50.8%, females = 41.4%).

As expected, reported rates of suicidal ideation and attempts were significantly higher among females and adolescents who also met clinical criteria for depression. However, level of gambling severity proved a significant predictor of both suicide ideation and attempts irrespective of other factors.

The current examination is limited by the reliance on self-report without corroborating information as well as by a cross-sectional design, which poses a challenge to efforts to understand causal relationships. In addition, it is important to note that the instruments used in all three studies required students to answer only two questions to assess suicidal ideation and attempts. As a result, the data included no rating of intensity for ideation and failed to differentiate genuine rumination about self-harm from simple morbid thinking and to delineate the relationship of suicidal thoughts to problem gambling and the direction of causality. Further exploration is warranted to clarify these factors.

Nevertheless, the findings suggest a disconcerting link between suicidality and gambling problems that bears further investigation, particularly since problem and pathological youth gamblers may go untreated and undetected by others. Adolescents typically have few financial responsibilities for shelter, food, and clothing. As such, they can direct disposable income towards leisure pursuits, sporting activities, and socialising with peers. While excessive gambling may result in significant distress (Gupta and Derevensky, 2000) and lead to delinquent behaviours like truancy and stealing (Hardoon and Derevensky, 2002), it may be viewed by adults as typical adolescent risk-taking behaviour equated with behaviours like fast driving, substance misuse, and sexual experimentation, and be considered an inconsequential phase or component of adolescent development.

Limited income, reliance on parental financial support, and the inability to borrow funds from financial institutions may also protect youth from accumulating large debts equivalent to those of adults; and legal consequences for stealing and other gambling-related financial crimes may be minimal or reduced because of the relative age and minor nature of the offences. The level of distress experienced by youth gamblers likely remains undetected, in part because they fail to present with consequences characteristic of adult problem gamblers and also because professionals working with youth so rarely screen for gambling problems. The current results remain alarming and suggest that mental health workers should identify and address the severe negative consequences associated with excessive and problematic gambling by adolescents.

Conclusion

Clearly, further in-depth research is needed to explore the nature and course of suicidality and depression in youth gamblers. Questions measuring level of ideation should distinguish thoughts of self-harm from morbid thinking and investigate the presence or absence of a formalised plan, means and/or planned time frame and the frequency of recurrent ideation. As well, occurrences of both ideation and attempts should be listed by date, providing a chronological point of comparison with the age of gambling onset and the self-reported timeframe of the onset of gambling problems. Qualitative differences in suicidality among adult gamblers (Maccallum and Blaszczynski, 2003) also emphasise the import-

ance of exploring gender-specific factors in youth gamblers expressing suicidality.

Longitudinal studies could prove invaluable in delineating the precise relationship of gambling-related consequences to depression and suicidal behaviour over time. It will be particularly important to follow youth into adulthood to determine whether adolescents with serious gambling problems and/or expressed suicidality are more likely than their peers to drop out of school, engage in other risky behaviours and experience other severe mental health disorders. Future research should focus on the systemic familial risk factors that contribute to both suicidality and problem gambling in youth as well as geographic and ethnic differences that influence youth gambling behaviour. Finally, thorough examination of the relationship of problem gambling, depression, and suicidality will inform prevention and intervention efforts by assisting educators in identifying personality variables and behavioural patterns that place certain adolescents at additional risk of harm before the potential for suicide becomes a reality.

References

- Allison, S., Roeger, L. Martin, G. and Keeves, J. 2001. 'Gender differences in the relationship between depression and suicidal ideation in young adolescents', *Australian and New Zealand Journal of Psychiatry*, 35, pp. 498-503.
- American Psychiatric Association, 2000. *Diagnostic and Statistical Manual of Mental Disorders* (4th rev. edn). American Psychiatric Association Press, Washington, DC.
- Aoki, W.T. and Turk, A.A. 1997. 'Adolescent suicide: A review of risk factors and implications for practice', *Journal of Psychological Christianity*, 16, pp. 273-9.
- Arbinaga, F. 2000. 'Descriptive study of pathological gambling in underage students: Sociodemographic characteristics, use of drugs, and depression' [in Spanish], *Adicciones*, 12, pp. 493-505.
- Blaszczynski, A. and Farrell, E. 1998. 'A case series of 44 completed gambling related suicides', *Journal of Gambling Studies*, 14, pp. 93-110.
- Cantor, C.H., Neulinger, K. and De Leo, D. 1999. 'Australian suicide trends 1964-1997: Youth and beyond', *Medical Journal of Australia*, 171, pp. 137-41.
- Custer, R. and Milt, H. 1985. *When Luck Runs Out: Help for Compulsive Gamblers and Their Families*. Facts on File, New York.
- Delfabbro, P. and Thrupp, L. 2003. 'The social determinants of youth gambling in South Australian adolescents', *Journal of Adolescence*, 26, pp. 313-30.
- Derevensky, J.L. and Gupta, R. 2000. 'Prevalence estimates of adolescent gambling: A comparison of the SOGS-RA, DSM-IV-J, and the G.A. 20 questions', *Journal of Gambling Studies*, 16, pp. 227-51.
- Fisher, S.E. 1992. 'Measuring pathological gambling in children: The case of fruit machines in the U.K.', *Journal of Gambling Studies*, 8, pp. 263-85.
- Fisher, S. 1999. 'A prevalence study of gambling and problem gambling in British Adolescents', *Addiction Research*, 7, pp. 509-38.
- Fisher, S. 2000. 'Developing the DSM-IV-MR-J criteria to identify adolescent problem gambling in non-clinical populations', *Journal of Gambling Studies*, 16, pp. 253-73.
- Frank, M., Lester, D. and Wexler, A. 1991. 'Suicidal behavior among members of Gamblers Anonymous', *Journal of Gambling Studies*, 7, pp. 249-54.
- Gould, M.S. and Kramer, R.A. 2001. 'Youth suicide prevention', *Suicide & Life Threatening Behavior*, 31(1, Suppl.), pp. 6-31.
- Gould, M.S., Greenberg, T., Velting, D.M. and Shaffer, M.D. 2003. 'Youth suicide risk and preventive interventions: A review of the past 10 years', *Journal of the American Academy of Child & Adolescent Psychiatry*, 42, pp. 386-405.
- Griffiths, M.D. 1995. *Adolescent Gambling*. Routledge, London.
- Grunbaum, J.A., Kann, L., Kinchen, S.A., Williams, B., Ross, J.G., Lowry, R. and Kolbe, L. 2002. 'Youth risk behavior surveillance—United States, 2001', *Morbidity & Mortality Weekly Report Surveillance Summaries*, 51, pp. 1-62.
- Gupta, R. and Derevensky, J.L. 1998a. 'Adolescent gambling behavior: A prevalence study and

- examination of the correlates associated with problem gambling', *Journal of Gambling Studies*, 14, pp. 319-45.
- Gupta, R. and Derevensky, J.L. 1998b. 'An empirical examination of Jacob's General Theory of Addictions: Do adolescent gamblers fit the theory?', *Journal of Gambling Studies*, 14, pp. 17-50.
- Gupta, R. and Derevensky, J.L. 2000. 'Adolescents with gambling problems: From research to treatment', *Journal of Gambling Studies*, 16, pp. 315-42.
- Hardoon, K.K. and Derevensky, J.L. 2002. 'Child and adolescent gambling behaviour: Current knowledge', *Clinical Child Psychology and Psychiatry*, 7, pp. 263-81.
- Hawton, K. and Fagg, J. 1992. 'Deliberate self-poisoning and self-injury in adolescents. A study of characteristics and trends in Oxford, 1976-1989', *British Journal of Psychiatry*, 161, pp. 816-23.
- Johnson, J.G., Cohen, P., Gould M.S., Kasen, S., Brown, J. and Brook, J.S. 2002. 'Childhood adversities, interpersonal difficulties, and risk for suicide attempts during late adolescence and early adulthood', *Archives of General Psychiatry*, 59, pp. 741-9.
- Kaminer, Y., Burleson, J.A. and Jadamec, A. 2002. 'Gambling behavior in adolescent substance abuse', *Substance Abuse*, 23, pp. 191-8.
- Kelly, T.M., Cornelius, J.R. and Lynch, K.G. 2002. 'Psychiatric and substance use disorders as risk factors for attempted suicide among adolescents: A case control study', *Suicide and Life Threatening Behavior*, 32, pp. 301-12.
- Lesieur, H.R. 1979. 'The compulsive gambler's spiral of options of involvement', *Psychiatry*, 42, pp. 79-87.
- Maccallum, F. and Blaszczynski, A. 2003. 'Pathological gambling and suicidality: An analysis of severity and lethality', *Suicide and Life Threatening Behavior*, 33, pp. 88-98.
- McClure, G.M. 1994. 'Suicide in children and adolescents in England and Wales 1960-1990', *British Journal of Psychiatry*, 165, pp. 510-14.
- Marttunen, M. and Pelkonen, M. 2001. 'Psychiatric risk factors for adolescent suicide—a review', *Psychiatria Fennica*, 31, pp. 110-25.
- National Research Council 1999. *Pathological Gambling: A Critical Review*. National Academy Press, Washington DC.
- Pagliari, L.A. 1995. 'Adolescent depression and suicide: A review and analysis of the current literature', *Canadian Journal of School Psychology*, 11, pp. 191-201.
- Petry, N.M. and Kiluk, B.D. 2002. 'Suicidal ideation and suicide attempts in treatment-seeking pathological gamblers', *Journal of Nervous and Mental Disease*, 190, pp. 462-9.
- Productivity Commission 1999. *Australia's Gambling Industries*. Ausinfo, Canberra.
- Reynolds, W.M. 1987. *Reynolds Adolescent Depression Scale*. Psychological Assessment Resources, Inc., Champaign, IL.
- Schneidman, E.S. 1996. *The Suicidal Mind*. Oxford University Press, Oxford.
- Shaffer, H.J. and Hall, M.N. 1996. 'Estimating prevalence of adolescent gambling disorders: A quantitative synthesis and guide toward standard gambling nomenclature', *Journal of Gambling Studies*, 12, pp. 193-214.
- Sullivan, S. 1994. 'Why compulsive gamblers are a high suicide risk?', *Community Mental Health in New Zealand*, 8, pp. 40-7.
- Vitaro, F., Arseneault, L. and Tremblay, R.E. 1999. 'Impulsivity predicts problem gambling in low SES adolescent males', *Addiction*, 94, pp. 565-75.
- Weissman, M.M. et al. 1999. 'Prevalence of suicide ideation and suicide attempts in nine countries', *Psychological Medicine*, 29, pp. 9-17.
- Werenko, D.D., Olson, L.M., Fullerton-Gleason, L., Lynch, A.W., Zumwalt, R.E. and Sklar, D.P. 2000. 'Child and adolescent suicide deaths in New Mexico, 1990-1994', *Crisis: Journal of Crisis Intervention and Suicide*, 21, pp. 36-44.
- World Health Organization (WHO) 2001. 'The World Health Report 2001. Mental health: New understanding, new hope', Available: <http://who.int/whr2001/2001>
- Wynne, H., Smith, G. and Jacobs, D.F. 1996. *Adolescent Gambling and Problem Gambling in Alberta*. Alberta Alcohol and Drug Abuse Commission, Edmonton, Alberta.