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Suicide and Gambling: Psychopathology and Treatment-Seeking

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The aim of this study was to evaluate suicides with a history of problem gambling (PG) and others with no such history (NPG) and to compare the two on mental health problems and service utilization. Data on a sample of 49 PG suicides and 73 NPG suicides were obtained from informants and hospital records. Psychopathology was prevalent in both groups, but problem gamblers were twice as likely to have a personality disorder. Moreover, PG suicides were less in contact with mental health services in their last month, their last year, and their lifetime. NPG suicides consulted specialized services from 3 (last month and last year) to 13 times (lifetime) as often as their PG counterparts. Lower service utilization associated with PG suicides argues in favor of stepping up detection, engagement in care and treatment with respect to problem gambling, especially when comorbidity is present.

Keywords: gambling, suicide, psychopathology, service utilization

Suicide is a major public health concern and ranks among the top 10 causes of death for individuals of all ages in most Western countries (World Health Organization [WHO], 2005). Over the past 30 years, numerous studies have examined the relation between suicide and mental disorders (Barraclough, Bunch, Nelson, & Sainsbury, 1974; Lesage et al., 1994; Zhang et al., 2003). These studies have identified numerous clinical risk factors for suicide completion, including previous suicide attempts, male sex, family history of suicide, presence of psychiatric problems, and inadequate treatment of mental disorders and addictive behaviors (Hawton et al., 1998; Kim et al., 2003; Lesage, Séguin, et al., 2008). Pathological gambling is one of these behaviors(Maccallum & Blaszczynski, 2003).

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In Canada, the prevalence of pathological gambling has been estimated at 0.8% (Ladouceur, Jacques, Chevalier, Sévigny, & Hamel, 2005); among youths 15 to 24 years of age, the national prevalence of moderate-risk or problem gambling has been pegged at 2.2% (Huang & Boyer, 2007). In a recent study, Newman and Thompson (2007) concluded that pathological gamblers were 3.4 times as likely as the general population to attempt suicide. Studies of suicides using the psychological autopsy method have reported rates varying from 30% to 60% for addictive behaviors (Arsenault-Lapierre, Kim, & Turecki, 2004) and 5% for pathological gambling (Séguin, Lesage, Guy, Daigle, & Turecki, 2006). The 12-month rate of suicidal behavior for pathological gamblers has been calculated at between 10% and 50% (DeCaria et al., 1996).

Studies based on patients recruited in treatment settings have estimated suicidal ideation and suicide attempts among individuals with pathological gambling to be within the range of 20% to 40% (Blaszczynski & Farrell, 1998; DeCaria et al., 1996; Kausch, 2003). Examining data from a gambling helpline, Ledgerwood, Steinberg, Wu, and Potenza (2005) noted that problem gamblers who acknowledged gambling-related suicidality also reported mental health and substance abuse treatment. In a study that examined treatment-seeking by male and female gamblers, 51% of participants indicated having thought about committing suicide in the past year (Beaudoin & Cox, 1999).

Regarding treatment-seeking behaviors, data have consistently shown that 40% to 50% of people with a self-reported mental disorder, such as anxiety, depression, or addictive behaviors, turn to mental health services for help (Lesage, Rhéaume, & Vasiliadis, 2008). It has also been found that people with addictive behaviors consult self-help groups and community services more often than

they do specialized mental health services (Suurvali, Hodgins, Toneatto, & Cunningham, 2008). Finally, a recent study in the province of Quebec (Chaput, Lebel, Labonté, Beaulieu, & Paradis, 2007) revealed that while visits by pathological gamblers to psychiatric emergency departments were on the rise since 2000, pathological gamblers did not tend toward a pattern of multiple visits, and the hospitalization rate for this group was lower than for typical psychiatric emergency patients.

Though there is much interest in the relationship between gambling and suicide, to our knowledge, no study has ever compared gambler suicides against nongambler suicides. What must be explored are the similarities and differences in clinical characteristics and service utilization between PG suicides and other suicide populations. Knowing this could lead to the development of differential prevention strategies for pathological gambling and suicidality and to new avenues of research on this public health problem. Against this backdrop, we sought to evaluate PG suicides and NPG suicides and compare the two groups on mental health problems and service utilization. We hypothesized that PG suicides would present a higher degree of psychopathology and a lower degree of treatment-seeking behavior.

Method

Participants

Through an ongoing collaborative agreement with the Quebec Coroner's Office and the Montreal Central Morgue, our research group has set out to examine and document suicide cases in the Greater Montreal region using the psychological autopsy method. The consecutive sampling strategy used is limited only by the decision of suicide survivor families to participate or not in our research and by our own work capacity. In this study, we recruited suicide survivor families over a 3-year period, paying special attention to cases flagged by the Coroner as potential gambling-related suicides.

Under the psychological autopsy method, the person best acquainted with the deceased is chosen to be interviewed as an informant. To date, 75% of suicide survivor families have agreed to participate in the research once referred by the Coroner's Office. Families that have refused to participate have not differed from participants with respect to age, race, or method of suicide used by victim.

PG suicides were identified on the basis of informant responses to questions regarding the DSM-IV criteria for pathological gambling and to the South Oaks Gambling Screen (SOGS). This methodology, which uses module K of the Structured Clinical Interview for DSM-IV (SCID, American Psychiatric Association [APA], 2001) to determine gambling problems, has been validated for Axis I and II diagnoses (Conner, Conwell, & Duberstein, 2001; Zhang et al., 2003). Though the SOGS was not intended to be administered to third-party informants, it was nonetheless used as an added measure to confirm presence of the dependent variable, that is, problem gambling.

Recruitment Procedure

Survivor families received a letter from the Coroner's Office explaining the study and asking those interested in participating to get in touch with the research team, either by phone or by mail. Then, the project's coordinators followed up with all families by telephone to explain the purpose of the study and to request their collaboration. If a family agreed to participate, signed written consent to take part in the study was obtained at the start of the first home visit. During the interview process, informants were questioned about the victim's utilization of medical services and asked to grant written consent allowing us access to a summary of the victim's hospital records, which included information on the number of hospital visits made and the reasons for these.

Informants were interviewed three times on average to complete all measures. For the clinical interview, we used a conversational approach to data gathering; duration seldom posed a problem. Briefly, the family member best-acquainted with the deceased was interviewed using the SCID I, the SCID II, the SOGS, and adapted instruments to assess mental health services received by the deceased. A vignette containing a summary of all relevant clinical information, including a summary of the medical records obtained from hospitals, was then reviewed by two psychiatrists (G.T., A.L.) to arrive at best-estimate consensus diagnoses based on DSM-IV criteria.

Instruments

Dependent variable: Problem gambling. Module K of the SCID covering the DSM (APA, 2001) criteria for pathological gambling was administered to the informant during the clinical interview. Convergent validity as evidenced by the correlation between the SOGS (original and derivative versions) and the DSM (both earlier and current versions) has consistently ranged from moderate (e.g., Sproston, Erens, & Orford, 2000) to high (e.g., Welte, Barnes, Wieczorek, Tidwell, & Parker, 2001). These correlations hold for both clinical (Stinchfield & Winters, 2001) and general (Stinchfield, 2002) population samples, as well as for adult and adolescent populations (Volberg, 1996, 1998). Internal consistency is .97, and test-retest reliability is .71.

The SOGS (Lesieur & Blume, 1987) is a 20-item instrument initially developed to screen clinical populations, such as substance abusers, for the presence of pathological gambling. The SOGS was found to have satisfactory reliability with coefficient alphas of .69 and .86 in the general population and gambling-treatment samples, respectively (Stinchfield, 2001). Item endorsements are tallied, and a score of 5 or more is interpreted as evidence of the presence of pathological gambling (Gambino & Lesieur, 2006). A SOGS score of 5 or more has a high concordance (95%) with the DSM criteria for pathological gambling (Koeter, de Fuentes-Merillas, Schippers, & van den Brink, 2003).

The module K results for the NPG group indicated no symptoms for 72 out of 73 persons. Although the informant for the one exception identified the suicide person has having met criteria for two symptoms in the last year, this was not enough to meet the screening criteria for problem gambling. Consequently, 100% of the NPG group screened for problem gambling with the SOGS proved to be NPGs. As for the PG group, the SCID module K scores indicated that all 49 persons met five or more symptoms, which qualified them as pathological gamblers. With the SOGS, 16% of informants endorsed three or four items, 29% endorsed between five to eight items, and 55% endorsed more than nine. Usually, the SOGS yields a higher prevalence estimate than does

the SCID. This was not the case in our study, as 16% of the PG group met fewer than five items of the SOGS, but five or more items of the SCID module K. However, all these individuals still fell within the range of at-risk or problem gambler. The one person who had stopped gambling in the course of the last year nevertheless had a long history of gambling problems.

Independent variable: Post-mortem diagnosis. We also administered the SCID for Axis I and Axis II disorders (First, Spitzer, Gibbon, & Williams, 1995; Spitzer, Williams, Gibbon, & First, 1992) to the informants. Psychological autopsy studies have demonstrated that approximately 90% of suicide cases presented a psychiatric disorder detectable by means of structured diagnostic procedures (Cavanagh, Carson, Sharpe, & Lawrie, 2003; Arsenault-Lapierre et al., 2004). Our research group has demonstrated very good levels of interrater reliability over the more than 2 decades it has applied this standardized proxy-based interview process (Dumais, Lesage, Lalovic, et al., 2005; Kim et al., 2003; Lesage et al., 1994).

Validity of proxy information. A series of studies over the past decade have demonstrated the concordance between DSM diagnoses based on informant report and those based on medical charts to be very good to excellent (Brent et al., 1993; Kelly & Mann, 1996; Schneider et al., 2004; Zhang et al., 2003). Regarding the characterization of probands, the literature on the validity of behavioral assessment by proxy has consistently demonstrated convergence between first- and third-party report (Conner et al., 2001; Dumais, Lesage, Lalovic, et al., 2005; McGirr, Paris, Lesage, Renaud, & Turecki, 2007; Zhang et al., 2003). In short, it has been shown that information on the behavior of a given individual does not differ significantly across informants, nor does it differ between proxies and the person in question. Moreover, very good concurrent validity estimates have been reported for different measures of the same behavioral traits.

Treatment-seeking. Clinical case histories (case vignettes) were drafted on the basis of the information obtained with the SCID I and II on treatment-seeking and treatment received. We then looked at the summaries of in- and outpatient hospital files to corroborate the information gathered during the interviews. For all cases investigated, we examined social, demographic, clinical, and service-utilization data through a standardized chart review used in previous studies where the items recorded proved reliable (for more information see Lesage, Séguin, et al., 2008). The clinical vignettes were submitted to a panel composed of a minimum of three auditors (two psychiatrists and a psychologist). The panel then recorded all services used in the last month, the last year, and lifetime, and categorized them under four levels of service delivery: (1) front-line physicians: GPs and other doctors; (2) front-line health and social services: nurses, social workers, youth centre or school professionals, or police; (3) specialized services: psychiatrists, psychologists, nurses, crisis center workers, addiction treatment centers, hospital emergency departments; and (4) volunteer services: hotlines and support lines, clergy, Alcoholics Anonymous, or Narcotics Anonymous.

Statistical Analyses

Statistical analyses were performed with the SPSS statistical package, version 15.0 (SPSS Inc., Chicago, IL). Chi-squared analysis was performed to analyze demographic variables and logistic regression (odds ratio and 95% confidence interval) to compare diagnoses and service utilization.

Results

Clinical Profile

The sample comprised 49 suicide completers with a history of problem gambling (PG) and 73 without (NPG). Most were men: 92% and 96%, respectively, in the PG and NPG groups (p = n.s.). Mean age of suicide victims was 43.5 years in the NPG group and 44.7 years in the PG group (p = n.s.). In the NPG group, 45% lived with a partner at time of death, as compared with 47% in the PG group (p = n.s.). As for level of education, 19% and 28% of the NPG and PG groups, respectively, had a post-secondary education (p = n.s.). In decreasing order, the most common suicide methods were hanging (49% vs. 43%, respectively, in the NPG and PG groups; p = n.s.), firearms (22% vs. 16%; p = n.s.), sharp instrument/jumping from a height (15% vs. 18%; p = n.s.), and drug overdose or carbon monoxide poisoning (14% vs. 18%; p = n.s.).

Gambling Activities and Related Data

The PG group had multiple preferred gambling activities, including lottery tickets, video lottery games, casinos, cards, and sports betting (less than a third). In the last year, however, gambling activities were restricted primarily to buying lottery tickets and playing video lottery games. As for the largest amount of money spent on gambling in one day, over 12% had reportedly spent more than $5,000; 69% had borrowed money to gamble or to pay back debts. Individuals in the PG group had started gambling as early as 9 years of age and others as late as 70. Mean number of years of gambling was 11.4, 10% stopped gambling at one time or other, and 14% had a family history of pathological gambling.

Psychopathological Profile

Table 1 gives the prevalence of mental health disorders among victims in the last year (12-month) and prior to the last year (PLY). High rates were obtained for at least one disorder excluding pathological gambling: 90% for both groups in the last year and about 80% prior to the last year. There were no statistically significant differences between the groups in this respect. Regarding Axis I disorders, we found high PLY rates of substance abuse and dependence disorders (62% for NPG and 60% for PG) and only slightly lower 12-month rates (55% for NPG and 48% for PG). We observed relatively high PLY rates of affective disorders (41% for NPG and 35% for PG) but higher 12-month rates (65% for both groups). As for Axis II disorders, they were identified in about half of each group (48% for NPG and 55% for PG). Moreover, problem gamblers were twice as likely to receive a cluster B personality disorder diagnosis (OR = 2.256; $CI_{95\%}$ = 1.015–5.014). Rates of comorbid disorders, other than pathological gambling, were impressive as well: 62% for NPG and 59% for PG prior to the last year and 68% and 65%, respectively, in the last 12 months.

Treatment-Seeking Behavior

The two groups showed very different treatment-seeking behaviors (Table 2). Based on bivariate analyses, NPG received more services

Table 1
Number of Persons With an Axis I or II Disorder – Last Year and Prior to Last Year (N = 122)

Variable	NPG $n = 73$		PG[1] $n = 49$		OR	95% CI	p
	n	%	n	%			
Last year							
Mood disorder	47	64.38	32	65.31	1.041	0.488–2.224	.917
Abuse and dependence disorders	40	54.79	23	46.94	0.730	0.353–1.509	.395
Anxiety disorder	9	12.33	8	16.33	1.388	0.495–3.886	.533
Psychosis/schizophrenia	10	13.70	2	4.08	0.268	0.056–1.281	.099
Total with at least one DX (excluding pathological gambling)	66	90.41	44	89.80	0.933	0.278–3.128	.911
Total comorbid disorders (other than pathological gambling)	50	68.49	32	65.31	0.866	0.402–1.866	.713
Prior to last year							
Mood disorder	30	41.10	17	34.69	0.761	0.359–1.613	.477
Abuse and dependence disorders	45	61.64	29	59.18	0.902	0.431–1.890	.785
Anxiety disorder	10	13.70	7	14.29	1.050	0.370–2.976	.927
Psychosis/schizophrenia	10	13.70	1	2.04	0.131	0.016–1.061	.057
Total with at least one DX (excluding pathological gambling)	62	84.93	40	81.63	0.789	0.300–2.073	.630
Total comorbid disorders (other than pathological gambling)	45	61.64	29	59.18	0.902	0.431–1.890	.785
Cluster A	1	1.37	2	4.08	0.326	0.029–3.702	.366
Cluster B	16	21.98	19	38.78	2.256	1.015–5.014	.046
Cluster C	14	19.18	5	10.20	0.479	0.160–1.429	.187
NOS	4	5.48	1	2.04	0.359	0.039–3.316	.367
Total personality disorder	35	47.95	27	55.10	1.332	0.664–2.775	.439

Note. [1] Reference category (PG), only for Table 1. OR = odds ratio; CI = confidence interval; NPG = non problem gambling; PG = problem gambling; DX = diagnosis; NOS = non otherwise specified.

than PG did from front-line medical services, front-line social services and second-line specialized services in the last year, prior to the last year, and lifetime. As our results showed that NPG and PG had comparable psychopathological profiles with the exception of schizophrenia (Table 1), it was necessary to take this difference into account. Consequently, we computed adjusted odd ratios to control for presence of mental disorders (Table 2). Multivariate analysis revealed inter-group differences in treatment-seeking were attributable to presence/absence of gambling problems and not to nature of psychopathology. Table 2 shows that NPG were more likely (though not always reaching statistical significance) to receive all types of services, regardless of time frame, except for front-line medical services in the last month; only in this time frame and for this type of service did PG outdo NPG.

NPG made greater use than PG did of front-line health and social services and specialized services. Indeed, NPG consulted front-line health and social services 13 times as often prior to the last year (OR = 13.106; $CI_{95\%}$ = 3.452–49.765). NPG also utilized specialized services more than three times as often in the last month (OR = 3.677; $CI_{95\%}$ = 1.304–10.372) and in the last year (OR = 3.231; $CI_{95\%}$ = 1.412–7.397) and more than five times as often (OR = 5.248; $CI_{95\%}$ = 2.221–12.403) prior to the last year. No significant differences emerged as to the use of nonprofit or volunteer services between the two groups. In other analyses, we observed that only 2% of PG had undergone psychotherapy for problem gambling in their lifetime.

Discussion

In this study, we investigated two groups of suicide completers, one with and the other without a gambling problem. Our results show that the two groups were comparable in terms of psychopathology, with the exception of cluster B personality disorder and, of course, pathological gambling. Though both groups tended to use fewer mental health services in the last month than in the last year, this was more markedly the case for PG suicides. In addition, only a very small proportion of PG (2% in our sample) underwent psychotherapy for problem gambling.

It is often said of problem gamblers that they suffer from a hidden illness, as they exhibit no obvious physical signs of alcohol or drug abuse. However, problem gamblers are prone to addiction (almost 60% lifetime) and accumulate comorbid disorders (60% lifetime). Yet, they make less use of professional services than do NPG.

In order to find ways to deliver services more effectively, it is essential to gain a better understanding of why problem gamblers fail to access mental health services. Results from other studies (e.g., Evans & Delfabbro, 2005) indicate that help-seeking is predominantly crisis-driven rather than motivated by recognition of a problem behavior. Moreover, the financial crisis that often accompanies problem gambling may eclipse the interpersonal, family, substance-abuse, and suicide crises that bring individuals into contact with services. In addition, factors such as denial, shame, and specific coping strategies associated with gamblers may make it all the more difficult to acknowledge the problem.

Various factors may play a role in preventing individuals from accessing services. For one, shame over the gambling habit should not be underestimated. For another, problem gamblers may be more secretive and accustomed to concealment. They may also desire less intervention and be drawn to gambling because it is a solitary activity. Evans and Delfabbro (2005) suggested that gambling could be a way to "get out of the house" and perhaps a form

Table 2
Services Received in Last Month, Last Year, Prior to Last Year, and Lifetime

Number of persons who consulted at least one service (%)	NPG,[2] $n = 73$		PG, $n = 49$		Bivariate odds ratio			Adjusted odds ratio		
	n	%	*n*	%	OR	95% CI	*p*	OR	95% CI	*p*
Last month								Month[a]		
Front-line medical services	9	12.33	7	14.29	0.844	0.292–2.439	.754	0.752	0.242–2.338	.662
Front-line health and social service practitioners	9	12.33	1	2.04	6.750	0.827–55.100	.075	6.263	0.732–53.594	.094
Private or public specialized services	23	31.51	6	12.24	3.297	1.229–8.842	.018	3.677	1.304–10.372	.014
Volunteer or nonprofit services	6	8.22	1	2.04	4.299	0.501–36.873	.184	3.610	0.408–31.967	.249
Last year								Year[b]		
Front-line medical services	32	43.84	9	18.37	3.469	1.470–8.183	.005	3.857	1.573–9.457	.003
Front-line health and social service practitioners	13	17.81	2	4.08	5.092	1.095–23.676	.038	4.721	0.984–22.659	.052
Private or public specialized services	36	49.32	12	24.49	3.000	1.353–6.654	.007	3.231	1.412–7.397	.006
Volunteer or nonprofit services	11	15.07	6	12.24	1.272	0.437–3.700	.659	1.159	0.375–3.583	.798
Prior to last year								PLY[c]		
Front-line medical services	42	57.53	14	28.57	3.387	1.562–7.347	.002	3.886	1.696–8.905	.001
Front-line health and social service practitioners	26	35.62	3	6.12	8.248	2.400–29.073	.001	13.106	3.452–49.765	.001
Private or public specialized services	59	80.82	23	46.94	4.764	2.122–10.697	.001	5.248	2.221–12.403	.001
Volunteer or nonprofit services	19	26.03	9	18.37	1.564	0.641–3.817	.326	1.669	0.660–4.371	.272
Lifetime								Lifetime[c]		
Front-line medical services	51	69.86	17	34.69	4.364	2.016–9.443	.001	4.634	2.049–10.477	.001
Front-line health and social service practitioners	30	41.10	4	8.16	7.849	2.551–24.149	.001	10.368	3.123–34.422	.001
Private or public specialized services	63	86.30	25	51.02	6.048	2.531–14.452	.001	6.907	2.706–17.631	.001
Volunteer or nonprofit services	24	32.88	13	26.53	1.356	0.609–3.020	.455	1.376	0.595–3.184	.455

Note. [2] Reference category (NPG), only for Table 2. OR = odds ratio; CI = confidence interval; NPG = non problem gambling; PG = problem gambling; PLY = prior to last year.
[a] Mood disorder, abuse and dependence disorders, anxiety disorder, psychosis/schizophrenia and group, in last year. [b] Mood disorder, abuse and dependence disorders, anxiety disorder, psychosis/schizophrenia and group, prior to last year. [c] Mood disorder, abuse and dependence disorders, anxiety disorder, psychosis/schizophrenia and group, lifetime.

of amusement, so that fear of being told not to gamble could be enough for people not to consult professional services.

Gender differences in terms of mental health service access were impossible to assess, as nearly all the suicides examined in our study were male (96% of NPG and 92% of PG). However, it is a fact that men present a higher suicide rate and that women seek mental health services differently (Huang & Boyer, 2007).

This militates all the more in favor of identifying problem gamblers at an early stage in order to change their attitudes to help-seeking and, in turn, reduce the stigma associated with admitting to having a problem. Professionals should be trained to screen for problem gambling when they identify people with addiction or mental health problems. Better treatment of comorbid disorders, such as addiction or affective disorders, could prove an effective strategy for reducing suicide among problem gamblers.

Limitations of Approaches to Determine Post-Mortem Diagnoses

The psychological autopsy method whereby informants are used to assess psychopathology in deceased persons has several limitations. These include factors related to third-party report, especially when information is gathered from a single informant (Hawton et al., 1998), such as recall biases and fuzzy memory (Beskow, Runeson, & Asgard, 1990; Burgess, Pirkis, Morton, & Croke, 2000). However, the method has been applied for decades now, and a series of studies have reported good-to-excellent reliability between DSM diagnoses based on informant report and those based on data from medical records (Beskow et al., 1990; Kelly & Mann, 1996) or formulated through other comparable methods (Brent, 1998; Brent et al., 1993; Schneider et al., 2004). Excellent inter-rater diagnostic reliability has been reported also when psychopathology diagnoses were rated independently by a panel of judges (Angst, Stassen, Clayton, & Angst, 2002; Kim et al., 2003). Finally, we cannot exclude potential under-reporting of substance-related problems in the case notes of specialist mental health care providers (Brunet, Cyr, Toupin, & Lesage, 1993).

Conclusion

Our findings underscore the high prevalence of comorbid disorders in both groups of suicide completers, especially the presence of mood disorders coupled with abuse and dependence disorders. Consequently, we need to gain a better understanding of the role of other mental disorders and their interaction with pathological gambling. We also need to advance our knowledge of treatment-seeking, or the paucity thereof, by pathological gamblers. What we might find out is that preventive efforts should focus on the detection and early treatment of both addiction and mental health problems, including gambling problems. Many global suicide-prevention strategies have identified detection and treatment of depression as a major objective in the campaign to reduce suicide rates (WHO, 2005). Although there is no disputing that treatment of depression is an important aspect of suicide prevention, our findings suggest that prevention of other clinical factors such as gambling should also be a central goal in a comprehensive suicide prevention strategy, especially in countries where

gambling is more and more accessible. Better suicide prevention calls for a more concerted effort on the part of specialized mental health and addiction services, including experts in the treatment of gambling problems, not to mention greater access to these services.

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