

The Association Between Pathological Gambling and Attempted Suicide: Findings From a National Survey in Canada

Stephen C Newman, MD, MSc¹, Angus H Thompson, PhD²

Objective: To examine the association between pathological gambling (PG) and attempted suicide in a nationally representative sample of Canadians.

Methods: Data came from the Canadian Community Health Survey, Cycle 1.2, conducted in 2002, in which 36 984 subjects, aged 15 years or older, were interviewed. Logistic regression was performed with attempted suicide (in the past year) as the dependent variable. The independent variables were PG, major depression, alcohol dependence, drug dependence, and mental health care (in the past year), as well as a range of sociodemographic variables. Survey weights and bootstrap methods were used to account for the complex survey design.

Results: In the final logistic regression model, which included terms for PG, major depression, alcohol dependence, and mental health care, as well as age, sex, education, and income, the odds ratio for PG and attempted suicide was 3.43 (95% confidence interval, 1.37 to 8.60).

Conclusions: PG (in the past year) and attempted suicide (in the past year) are associated in a nationally representative sample of Canadians. However, it is not possible to say from these data whether this represents a causal relation.

(Can J Psychiatry 2007;52:605–612)

Information on funding and support author affiliations appears at the end of the article.

Clinical Implication

- Patients with a diagnosis of PG may be at increased risk of attempted suicide.

Limitations

- Determination of what constitutes an “attempted suicide” was left to the discretion of the respondent.
- Subjects were not asked specifically whether gambling problems had precipitated the attempted suicide.
- It is not possible to say from these data whether the PG–attempted suicide association represents a causal relation.

Key Words: *pathological gambling, attempted suicide, survey*

There is mounting evidence that PG is associated with suicidality.¹ Several case series have demonstrated that, relative to population norms, problem gamblers exhibit increased rates of suicide-related behaviours.²⁻⁹ However, these studies suffer from the shortcomings that subjects were self-selected through treatment seeking and comparison groups were not included. Phillips et al¹⁰ analyzed vital statistics for residents of 3 major gambling centres in the United States—Las Vegas, Reno, and Atlantic City—and found elevated standardized mortality ratios for (completed) suicide. McCleary et al¹¹ extended this analysis by estimating “visitor” suicide rates for 91 metropolitan areas in the United States and showed that these 3 gaming centres ranked only 26th, 37th, and 87th, respectively. In a regression analysis of ecological data from 64 parishes in Louisiana, Campbell et al¹² found that, per capita, spending on lotteries was positively associated with a change in suicide rates during 1989 to 1990 and 1994 to 1995. Ladouceur et al¹³ interviewed a sample of 1471 college students, aged 16 to 23 years, living in the metropolitan area of Quebec City. The lifetime prevalence rate of attempted suicide in pathological gamblers was 26.8%, while among those without gambling problems, the rate was 7.2%.

To our knowledge, a study by us¹⁴ is the only one reported to date that uses data from a general population sample to investigate the association between PG and attempted suicide. During 1983 to 1990, we used Version III of the DIS to interview a random sample of 7214 residents of Edmonton, Alberta, aged 18 years or older.¹⁵ With DIS software, we made lifetime diagnoses based on DSM-III criteria¹⁶ without hierarchies. In a logistic regression analysis that adjusted for age, sex, and major depression, the OR for the association between (lifetime) PG and (lifetime) attempted suicide was 4.9 (95%CI, 1.4 to 17.1). When terms for drug abuse–dependence, alcohol abuse–dependence, antisocial personality disorder, and phobic disorder were included in the model, the OR dropped to 1.9 and was no longer statistically significant (95%CI, 0.5 to 7.2). Our interpretation of this finding was that a history of

attempted suicide is associated with a history of PG and that the connection is due to a common factor, which we characterized as a predisposition toward “mental illness.” In this paper, we use data from a national survey of mental health in Canada to report on the association between PG and attempted suicide.

Methods

The CCHS 1.2 is a national survey of mental health conducted between May and December 2002 by Statistics Canada, the national statistics agency. The target population was citizens aged 15 years or older who were living in a private dwelling in one of the 10 provinces. Excluded were residents of institutions, Reserves, Crown lands, and certain remote areas, as well as members of the Canadian Forces. The CCHS 1.2 used a complex sampling strategy, with multiple stages, stratification, and clustering. The target sample size was 38 492. A more detailed description of the survey methodology has been reported elsewhere.¹⁷

The CCHS 1.2 interview was based on a compilation of questionnaires selected by Statistics Canada to elicit information on various aspects of mental health. For the purposes of data analysis, we treated attempted suicide as the dependent (outcome) variable and PG as an independent (predictor) variable. It is important to appreciate that, owing to the cross-sectional nature of CCHS 1.2 data, any association observed between these 2 variables does not necessarily represent a causal relation. Our goal when selecting the other independent variables was to identify potential confounders of the PG–attempted suicide association. The literature on risk factors for attempted suicide is extensive¹⁸—much less is known about PG. We chose the following psychiatric and socio-demographic variables to be independent variables: major depression, alcohol dependence, (illicit) drug dependence, mental health care, age, sex, marital status, region of residence, education, employment status, and total household income. All the psychiatric variables, as well as the sociodemographic variables education, employment status, and total household income were available in the form of a “derived variable” created by Statistics Canada from CCHS 1.2 questionnaire items.

We used the CPGI to diagnose PG in the past year.¹⁹ The CPGI is a 9-item questionnaire with summary scores falling in the range 0 to 27. A score of 8 or more is used to define PG, giving the CPGI a sensitivity of 83% and a specificity of 100% when compared with DSM-IV criteria.^{19,20} We used modules chosen from versions of the CIDI to diagnose major depression, alcohol dependence, and drug dependence in the past year according to DSM-IV criteria.²¹⁻²³ Statistics Canada made some modifications to the CIDI questionnaires to reduce respondent burden and clarify concepts.¹⁷ In the

Abbreviations used in this article

CCHS 1.2	Canadian Community Health Survey: Mental Health and Well-Being
CI	confidence interval
CIDI	Composite International Diagnostic Interview
CPGI	Canadian Problem Gambling Index
DIS	Diagnostic Interview Schedule
OR	odds ratio
PG	pathological gambling

diagnosis of drug dependence, the following substances were considered: amphetamines; cannabis; cocaine or crack; ecstasy; gasoline, glue, or other solvents; hallucinogens, lysergic acid diethylamide, and phencyclidine thiophene; heroin; and steroids.

We used the CIDI module on major depression to determine a history of attempted suicide in the past year. The decision as to what constitutes an “attempted suicide” was left to the discretion of the respondent. Owing to technical problems with certain skip patterns in the section on suicidality, about 1% of respondents were not asked questions needed to determine a history of attempted suicide in the past year. Statistics Canada used answers to the other questionnaire items to deterministically impute missing responses.¹⁷

Respondents were asked whether help had been received in the past year for a problem concerning the “emotions, mental health, or use of alcohol or drugs.” This help might have come from a physician, psychologist, social worker, religious advisor, or other professional and could have been received in a hospital, through a self-help group, telephone helpline, or Internet chat room.

Level of education was divided into 2 categories according to whether education went beyond high school or not. Employment status (in the past year) was categorized into partly or fully employed, unemployed, or not in the labour force. Total household income (in the past year) had 5 levels—lowest, lower middle, middle, upper middle, highest—and was defined by Statistics Canada so as to account for the number of individuals residing in the household. We grouped provinces into the following geographic regions: Atlantic, Quebec, Ontario, Prairies, and British Columbia.

The CPGI defines PG over the past year only, and owing to faulty skip patterns in the CCHS 1.2 questionnaires, Statistics Canada was not able to create derived variables for lifetime alcohol dependence and drug dependence. For these reasons, we did not conduct analyses with variables defined on a lifetime basis.

A logistic regression analysis was performed with attempted suicide as the dependent variable. We were particularly interested in the OR for the association between PG and attempted suicide, after adjusting for potential confounding variables. To account for the complex sampling design of the CCHS 1.2, survey weights and bootstrap weights provided by Statistics Canada were used. This ensures that point estimates are unbiased and that *P* values and 95% CIs are adjusted for design effect. For reasons of confidentiality, Statistics Canada would not permit the publication of unweighted counts, except for overall sample size. All statistical analyses were performed at the Statistics Canada Research Data Centre, University of

Alberta site. The study was approved by the Research Ethics Board of the University of Alberta.

Results

The response rate was 77%, and the sample size was 36 984. Table 1 gives 1-year prevalence rates of attempted suicide. The overall rate is 0.52% (95%CI, 0.43% to 0.63%), which is higher than expected from administrative data, as discussed below. Table 2 gives ORs based on logistic regression models in which each variable is analyzed as a single main effect, making it possible to readily identify high-risk categories for attempted suicide. Except for geographic region (*P* = 0.22), all the variables considered were statistically significant (*P* < 0.05). The highest risk categories were age 15 to 19 years; female sex; single or never-married status; having at most a high school education; unemployed status; being in the lowest household income category; having a 1-year history of PG, major depression, alcohol dependence, or drug dependence; and having received mental health care in the past year. Of particular relevance to this study is the OR of 8.8 (95%CI, 4.0 to 19.2) for PG.

To account for the inevitable correlations among the variables in Table 2, we conducted a multivariate logistic regression analysis. Models were built in a stepwise fashion, with statistical significance determined by the Wald test. The only interaction terms considered were those involving PG. The final multivariate model, shown in Table 3, has main effects for age, sex, education, income, PG, major depression, alcohol dependence, and mental health care. Surprisingly, the term for sex was not statistically significant. However, this variable was included in the model because it has been repeatedly shown that women are at higher risk of attempted suicide.²⁴ The individual ORs in Table 3 differ from the corresponding ORs in Table 2; however, except for sex, the patterns are similar. For PG, the OR is 3.4 (95%CI, 1.4 to 8.6).

Recall from Table 2 that the *P* value for sex was 0.014. To explore the lack of statistical significance of this variable in the final multivariate model (Table 3), we constructed a series of models containing sex and only one other independent variable. In the model with major depression, the *P* value for sex was 0.38. This suggests that the increased rate of attempted suicide among women may be largely owing to their greater prevalence of depression.²⁵

Discussion and Conclusions

We have analyzed data from a national survey of mental health in Canada and found a 1-year prevalence rate of attempted suicide of 0.52%. On the basis of a study conducted in the cities of Edmonton and Calgary, Alberta, we estimate the 1-year prevalence rates of attempted suicide to be about 0.25% and 0.19%, respectively.²⁶ In that study, counts of

Table 1 One-year prevalence rates of attempted suicide (weighted)

Characteristic	Prevalence rate, %	95%CI
Overall	0.52	0.43 to 0.63
Age, years		
55+	0.13	0.08 to 0.21
35 to 54	0.56	0.41 to 0.77
20 to 34	0.56	0.40 to 0.80
15 to 19	1.48	1.07 to 2.06
Sex		
Male	0.40	0.30 to 0.53
Female	0.64	0.50 to 0.81
Marital status		
Married, common-law	0.26	0.18 to 0.38
Widowed, separated, divorced	0.83	0.57 to 1.20
Single, never-married	1.01	0.79 to 1.29
Region		
Atlantic	0.36	0.23 to 0.55
Quebec	0.38	0.23 to 0.62
Ontario	0.59	0.45 to 0.77
Prairies	0.59	0.40 to 0.87
British Columbia	0.62	0.40 to 0.95
Education		
Beyond high school	0.32	0.24 to 0.43
At most, high school	0.79	0.63 to 0.99
Employment status (past year)		
Partly or fully employed	0.44	0.35 to 0.57
Not in labour force	0.74	0.56 to 0.98
Unemployed	2.30	1.30 to 4.02
Household income category (past year)		
Highest	0.22	0.12 to 0.42
Upper middle	0.44	0.30 to 0.64
Middle	0.38	0.27 to 0.54
Lower middle	1.18	0.74 to 1.87
Lowest	2.69	1.80 to 4.02
PG (past year)		
No	0.51	0.42 to 0.61
Yes	4.26	2.18 to 8.18
Major depression (past year)		
No	0.23	0.18 to 0.31
Yes	5.98	4.73 to 7.54
Alcohol dependence (past year)		
No	0.45	0.37 to 0.56
Yes	2.87	1.85 to 4.42
Drug dependence (past year)		
No	0.48	0.39 to 0.58
Yes	6.12	3.58 to 10.26
Mental health care (past year)		
No	0.20	0.14 to 0.29
Yes	3.37	2.74 to 4.14

Table 2 Single main effect logistic regression ORs for attempted suicide (weighted)

Characteristic	OR	95%CI	P
Age, years			< 0.001
55+	1.0	Not applicable	
35 to 54	4.35	2.39 to 7.93	
20 to 34	4.38	2.29 to 8.36	
15 to 19	11.69	6.33 to 21.59	
Sex			0.01
Male	1.0	Not applicable	
Female	1.60	1.10 to 2.32	
Marital status			< 0.001
Married, common-law	1.0	Not applicable	
Widowed, separated, divorced	3.20	1.90 to 5.42	
Single, never-married	3.90	2.26 to 6.19	
Region			0.22
Atlantic	1.0	Not applicable	
Quebec	1.05	0.53 to 2.10	
Ontario	1.64	0.98 to 2.76	
Prairies	1.64	0.90 to 2.99	
British Columbia	1.73	0.92 to 3.25	
Education			< 0.001
Beyond high school	1.0	Not applicable	
At most, high school	2.47	1.69 to 3.63	
Employment status (past year)			< 0.001
Partly or fully employed	1.0	Not applicable	
Not in labour force	1.67	1.14 to 2.44	
Unemployed	5.26	2.76 to 10.05	
Household income category (past year)			< 0.001
Highest	1.0	Not applicable	
Upper middle	1.96	0.90 to 4.28	
Middle	1.71	0.79 to 3.71	
Lower middle	5.33	2.29 to 12.40	
Lowest	12.35	5.59 to 27.29	
PG (past year)			< 0.001
No	1.0	Not applicable	
Yes	8.75	3.98 to 19.23	
Major depression (past year)			< 0.001
No	1.0	Not applicable	
Yes	27.08	18.98 to 38.63	
Alcohol dependence (past year)			< 0.001
No	1.0	Not applicable	
Yes	6.48	3.97 to 10.57	
Drug dependence (past year)			< 0.001
No	1.0	Not applicable	
Yes	13.64	7.39 to 25.20	
Mental health care (past year)			< 0.001
No	1.0	Not applicable	
Yes	17.01	11.17 to 25.90	

Characteristic	OR	95%CI	P
Age, years			< 0.001
55+	1.0	Not applicable	
35 to 54	3.58	1.84 to 6.99	
20 to 34	3.53	1.67 to 7.44	
15 to 19	9.40	4.57 to 19.33	
Sex			0.90
Male	1.0	Not applicable	
Female	1.03	0.65 to 1.63	
Education			0.001
Beyond high school	1.0	Not applicable	
At most, high school	2.27	1.41 to 3.66	
Income category (past year)			< 0.001
Highest	1.0	Not applicable	
Upper middle	1.47	0.64 to 3.37	
Middle	1.14	0.50 to 2.60	
Lower middle	3.05	1.26 to 7.35	
Lowest	4.31	1.83 to 10.11	
PG (past year)			0.008
No	1.0	Not applicable	
Yes	3.43	1.37 to 8.60	
Major depression (past year)			< 0.001
No	1.0	Not applicable	
Yes	8.86	4.90 to 16.00	
Alcohol dependence (past year)			0.009
No	1.0	Not applicable	
Yes	2.32	1.23 to 4.38	
Mental health care (past year)			< 0.001
No	1.0	Not applicable	
Yes	5.06	2.61 to 9.82	

attempted suicide were obtained from administrative databases that recorded all visits to emergency departments for episodes of nonfatal self-harm during the fiscal year 1996 to 1997. To the extent that residents of Edmonton and Calgary are representative of the rest of the country, it seems that recorded visits to emergency departments capture at most one-half of the attempted suicides in Canada. It should be noted, however, that the cases seen in the emergency department study were, for the most part, self-referred, whereas those in the present survey were self-reported.

The findings in Tables 2 and 3 are consistent with earlier reports on risk factors for attempted suicide.^{24,27} The primary aim of this study was to investigate the relation between PG and attempted suicide, not to develop a comprehensive

predictive model of attempted suicide. In the multivariate analysis (Table 3), the OR for this association was 3.4, which was statistically significant despite adjustment for a range of sociodemographic and psychiatric variables.

This finding differs from our earlier study, where the OR for the association between (lifetime) PG and (lifetime) attempted suicide declined in statistical significance as additional variables were added to the multivariate model.¹⁴ In that study, it was necessary to base the analysis on the lifetime prevalence of PG to maximize the number of cases, whereas in the present study we had sufficient sample size to permit an analysis in terms of 1-year prevalence. It may be that, when viewed over a timeframe as short as 1 year, the association between PG and attempted suicide does not require other

psychiatric variables to play a mediating role. However, this is speculative, and it must be acknowledged that, owing to the cross-sectional nature and other inherent limitations of the CCHS 1.2 data, it is not possible to say whether the observed association is causal. Future surveys looking at PG and attempted suicide should enquire about the chronological order of events preceding the interview, and respondents with a history of attempted suicide should be asked whether problems related to gambling precipitated the episode of self-harm.

Although the focus of this study was on the association between PG and attempted suicide, the results of the multivariate analysis (Table 3) are of more general interest, and confirm previously reported risk factors for attempted suicide.¹⁸ Teenagers, the less well-educated, those who are financially disadvantaged, and individuals with a 1-year history of major depression or alcohol dependence are more likely to have attempted suicide in the past year. In the multivariate analysis, we were surprised to find that sex was not associated with attempted suicide. A possible explanation, supported by CCHS 1.2 data, is that major depression, which is well known to have a greater prevalence in women, accounts for the role of sex in attempted suicide.

Over the past decade, the gambling industry has expanded dramatically in Canada.²⁸ Many observers are concerned about the societal, family, and personal problems following in the wake of this unprecedented growth. This study demonstrates that there is an association between gambling, when taken to excess, and self-harm. Despite the lack of a clear causal relation, this finding is of public health concern.

Funding and Support

This research was funded by the Canadian Institutes of Health Research.

Acknowledgements

The research and analysis are based on data from Statistics Canada. The opinions expressed do not represent the views of Statistics Canada.

References

1. Pfuhlmann B, Schmidtke E. Pathological gambling and suicidal behavior. *Arch Suicide Res.* 2002;6:257–267.
2. McCormick RA, Russo AM, Ramirez LF, et al. Affective disorders among pathological gamblers seeking treatment. *Am J Psychiatry.* 1984;141:215–218.
3. Sullivan S. Why compulsive gamblers are a high suicide risk. *Community Ment Health N Z.* 1994;8:40–47.
4. Beaudoin CM, Cox BJ. Characteristics of problem gambling in a Canadian context: a preliminary study using DSM-IV–based questionnaire. *Can J Psychiatry.* 1999;44:483–487.
5. Petry NM, Kiluk BD. Suicidal ideation and suicide attempts in treatment-seeking pathological gamblers. *J Nerv Ment Dis.* 2002;190:462–469.

6. Kausch O. Suicide attempts among veterans seeking treatment for pathological gambling. *J Clin Psychiatry.* 2003;64:1031–1038.
7. MacCallum F, Blaszczynski A. Pathological gambling and suicidality: an analysis of severity and lethality. *Suicide Life Threat Behav.* 2003;33:88–98.
8. Ledgerwood DM, Petry NM. Gambling and suicidality in treatment-seeking pathological gamblers. *J Nerv Ment Dis.* 2004;192:711–714.
9. Ledgerwood DM, Steinberg MA, Wu R, et al. Self-reported gambling-related suicidality among gambling helpline callers. *Psychol Addict Behav.* 2005;19:175–183.
10. Phillips DP, Welty WR, Smith MM. Elevated suicide levels associated with legal gambling. *Suicide Life Threat Behav.* 1997;27:373–378.
11. McCleary R, Chew K, Feng W, et al. Suicide and gambling: an analysis of suicide rates in US counties and metropolitan areas. Report to the American Gaming Association. Irvine (CA): University of California–Irvine, School of Ecology; September 1998.
12. Campbell F, Simmons C, Lester D. The impact of gambling on suicidal behavior in Louisiana. *Omega: The Journal of Death and Dying.* 1998–1999;38(3):235–239.
13. Ladouceur R, Dubé D, Bujold A. Prevalence of pathological gambling and related problems among college students in the Quebec metropolitan area. *Can J Psychiatry.* 1994;39:289–293.
14. Newman SC, Thompson AH. A population-based study of the association between pathological gambling and attempted suicide. *Suicide Life Threat Behav.* 2003;33:80–87.
15. Robins LN, Helzer JF, Croughan J, et al. National Institute of Mental Health Diagnostic Interview Schedule: its history, characteristics, and validity. *Arch Gen Psychiatry.* 1981;38:381–389.
16. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 3rd ed. Washington (DC): American Psychiatric Association; 1980.
17. Gravel R, Béland Y. The Canadian Community Health Survey: Mental Health and Well-Being. *Can J Psychiatry.* 2005;50:573–579.
18. Hawton K, van Heeringen, editors. The international handbook of suicide and attempted suicide. New York (NY): John Wiley & Sons; 2000.
19. Ferris J, Wynne H. The Canadian problem gambling index: final report. Ottawa (ON): Canadian Centre on Substance Abuse; 2001.
20. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington (DC): American Psychiatric Association; 1994.
21. Robins LN, Wing J, Wittchen HU, et al. The Composite International Diagnostic Interview: an epidemiologic instrument suitable for use in conjunction with different diagnostic systems and in different countries. *Arch Gen Psychiatry.* 1988;45:1069–1077.
22. Kessler RC, Andrews G, Mroczek D, et al. The World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF). *Int J Methods Psychiatr Res.* 1998;7:171–185.
23. Kessler RC, Üstün TB. The World Mental Health (WMH) Survey Initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *Int J Methods Psychiatr Res.* 2004;13:83–121.
24. Bland RC, Dyck RJ, Newman SC, et al. Attempted suicide in Edmonton. In: Leenaars AA, Wenckstern S, Sakinofsky I, et al, editors. *Suicide in Canada.* Toronto (ON): University of Toronto Press; 1998. p 136–150.
25. Weissman MM, Brude ML, Leaf PJ, et al. Affective disorders. In: Robins LN, Regier DA, editors. *Psychiatric Disorders in America: the Epidemiologic Catchment Area Study.* New York (NY): The Free Press; 1991. p 53–80.
26. Newman SC, Stuart H. An ecologic study of parasuicide in Edmonton and Calgary. *Can J Psychiatry.* 2005;50:275–280.
27. Beautrais AL, Joyce PR, Mulder RT. Unemployment and serious suicide attempts. *Psychol Med.* 1998;28:209–218.
28. Azmier JJ. *Gambling in Canada 2005: statistics and context.* Calgary (AB): Canada West Foundation; 2005.

Manuscript received October 2006, revised, and accepted February 2007. Portions of this paper were previously presented at the Mental Health Research Showcase; 2006 Oct 31; Banff (AB).

¹Professor, Department of Psychiatry, University of Alberta, Edmonton, Alberta.

²Associate Professor, Department of Public Health Sciences, University of Alberta, Edmonton, Alberta; now Adjunct Professor, Department of Public Health, Flinders University, Bedford Park, South Australia.

Address for correspondence: Dr S Newman, Department of Psychiatry, Mackenzie Centre, University of Alberta, Edmonton, AB T6G 2B7; stephen.newman@ualberta.ca

Résumé : L'association entre le jeu pathologique et les tentatives de suicide : résultats d'une enquête nationale au Canada

Objectif : Examiner l'association entre le jeu pathologique (JP) et les tentatives de suicide dans un échantillon de Canadiens nationalement représentatif.

Méthodes : Les données provenaient de l'Enquête sur la santé dans les collectivités canadiennes, cycle 1.2, menée en 2002, dans laquelle on a interrogé 36 984 sujets de 15 ans et plus. La régression logistique a été exécutée et les tentatives de suicide (dans l'année précédente) étaient la variable dépendante. Les variables indépendantes étaient le JP, la dépression majeure, la dépendance à l'alcool, la dépendance aux drogues, et les soins de santé mentale (dans l'année précédente), ainsi qu'une série de variables sociodémographiques. Les poids de l'enquête et les méthodes bootstrap ont été utilisés pour tenir compte de la méthode complexe de l'enquête.

Résultats : Dans le modèle final de régression logistique, qui comprenait des termes pour le JP, la dépression majeure, la dépendance à l'alcool, et les soins de santé mentale, ainsi que le sexe, l'âge, l'instruction, et le revenu, le risque relatif du JP et des tentatives de suicide était de 3,43 (95 % intervalle de confiance, 1,37 à 8,60).

Conclusions : Le JP (dans l'année précédente) et les tentatives de suicide (dans l'année précédente) sont associés dans un échantillon de Canadiens nationalement représentatif. Cependant, il n'est pas possible de déterminer à partir de ces données si cela représente une relation causale.