Patterns and trends in gambling participation in the Quebec population between 2009 and 2012

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ABSTRACT

OBJECTIVES: To describe gambling practices and trends in Quebec between 2009 and 2012 given that, in Canada, public funding allocation to address the risks associated with gambling practices should be based on valid prevalence data and knowledge of patterns and trends in vulnerable populations.

METHODS: The study data were taken from the 2009 and 2012 cross-sectional waves of the Enquête sur les habitudes de jeu des Québécois (ENHJEU-Québec). The analytical sample consisted of 11,888 respondents in 2009 and 12,008 respondents in 2012.

RESULTS: The prevalence of lifetime non-gamblers in the adult population of Quebec increased from 13.6% in 2009 to 16.4% in 2012, and past-year gambling participation decreased from 70.5% to 66.2%. Changes in gambling patterns were not contingent on demographic characteristics; gambling prevalence decreased in all subcategories. The proportion of problem and low-risk gamblers remained unchanged, whereas the prevalence of non-problem gamblers decreased significantly from 66.1% in 2009 to 61.5% in 2012.

CONCLUSION: Gambling participation in Quebec is decreasing, though the proportion of problem gamblers remains stable. Given these findings, allocation of public resources for health care services should be maintained. Secondary and primary prevention efforts need to be initiated or maintained to prevent gambling harm.

KEY WORDS: Gambling; pathological gambling; risk; prevalence studies; epidemiology

La traduction du résumé se trouve à la fin de l'article.

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Since the legalization of gambling in Canada in 1969, increased public funding has been allotted to the prevention of risky gambling practices and the treatment of gambling disorders. The allocation of public resources for prevention and treatment services should rest on valid prevalence rates and knowledge of the evolution of patterns and trends in vulnerable subgroups of the population. This paper reports on the patterns and trends in gambling practices between 2009 and 2012 in the province of Quebec.

Internationally, repeated prevalence surveys developed in Sweden, Great Britain and Australia have shown trends regarding gambling habits and gambling problems. The Swedish Longitudinal Gambling Study comprised three tracks of data collection (epidemiological, in-depth and follow-up) and used the Problem Gambling Severity Index (PGSI), which allowed comparison with the first Swedish national study conducted in 1997 and 1998.¹ The results indicated that, at a population level, gambling participation declined markedly, from 88% in 1998/1999 to 70% in 2008/2009. On the basis of the PGSI, in 2008/2009, 0.3% of the adult population were classified as problem gamblers (with PGSI scores of 8 and above) and an additional 1.9% were classified as moderate risk gamblers (scores between 3 and 7).² According to the revised South Oaks Gambling Screen, the lifetime prevalence of probable pathological gambling increased (1.2% to 2.0%), but changes in the prevalence of lifetime problem gambling, and 12-month probable pathological and problem gambling did not change significantly. Some forms

of gambling, such as poker and electronic gaming machines, increased in specific subgroups. High-risk groups were identified: males, people aged 18–24, people with low levels of education and people born outside of Sweden.

The British Gambling Prevalence Surveys were conducted in 1999, 2007 and 2010 in Great Britain. These large-scale representative surveys found that past-year gambling prevalence in 2010 was higher than in 2007 but similar to the levels observed in 1999. Five activities accounted for the recent increase: 1) scratchcards, 2) lotteries other than the national lottery draw, 3) betting on other events and sports, 4) gambling online on bingo, casino or slot machine-style games and 5) gambling on fixed odds betting terminals. Problem gambling prevalence estimates (past year) as measured by the PGSI were 0.5% in 2007. In 2010, comparable estimates were 0.7%. These changes were not statistically significant ($p = 0.23$).³

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In Tasmania, Australia, six gambling prevalence studies have been conducted since 1994, most recently in 2011.⁴ In 2011, 64.8% of the population reported gambling on any activity in the previous 12 months, compared with 71.7% in 2008. The rate of reported problem gambling severity increased from 0.5% in 2008 to 0.7% in 2011.⁴

In Canada, the last national survey using a representative sample across provinces was conducted in 2001. The Canadian Community Health Survey (cycle 1.2) estimated that the prevalence rate of gambling was 76%.⁵ Since 2002, only individual provincial surveys have been carried out. Across Canada, gambling rates vary depending on the province, Nova Scotia and Saskatchewan reporting the highest prevalence (87%).^{6,7} Without taking into account differences in methodologies and time frames, on average it can be estimated that 79.2% of the adult population gamble each year in Canada,⁸ and 3.7% of adult Canadians can be classified as moderate risk or problem gamblers.⁹ Rates, again, vary by province, from 1.6% in Prince Edward Island to 6.1% in Manitoba.^{10,11}

In Quebec, the prevalence of gambling habits and problem gambling has been measured since 1991. At that time, a survey was conducted with a representative sample of 1,002 participants using the South Oaks Gambling Screen (SOGS). Eighty-eight percent of the Quebec population reported gambling in the previous 12 months. The prevalence of problem gambling was estimated at 2.6% and the prevalence of probable pathological gambling at 1.2%.¹² In 1996, as measured by the SOGS with a sample of 1,275 participants, 90% of the Quebec population reported having gambled in the previous year. The prevalence of at-risk gamblers was 1.4% and that of potential pathological gamblers was 1.0%. In 2002, a representative sample of 8,842 adults was studied using both the SOGS and the PGSI. The results showed that 81% of the population reported having gambled in the previous 12 months. The prevalence of probable pathological gambling measured by the PGSI was 0.8%. The survey also measured preferred gambling practices. The most frequent gambling practices were buying lottery tickets (68%), participating in fundraising draws (40%), gambling in casinos (18%), playing cards with family or friends (10%), playing bingo (9%) and playing video lotteries (8%).¹³ The percentage of gamblers in the general adult population decreased steadily after 1991, as did the prevalence of probable pathological gamblers. However, confidence intervals were not reported in the three surveys. As a result, valid trend comparisons cannot be performed with these databases.

Identifying trends across surveys has been somewhat problematic for a number of reasons, such as regular changes in the instruments used to measure problem gambling severity, relatively low base rates of problem gambling severity and high standard errors for some prevalence estimates. Nonetheless, the most recent results indicate an overall trend of declining participation and an apparent stabilization of problem gambling severity rates. Using two large representative samples drawn from the adult population of the province of Quebec, this study aims to investigate four-year trends in the prevalence of gambling and of problem gambling across different demographic groups.

METHODS

Data sources

The data were derived from the 2009 and 2012 cross-sectional waves of the Enquête sur les habitudes de jeu des Québécois (ENHJEU-Quebec), which aims to monitor trends in the gambling habits of the non-institutionalized population aged 18 and over who speak French or English and live in private households throughout the province of Quebec ($N = 11,888$ in 2009; $N = 12,008$ in 2012). Data were collected using computer-assisted telephone interviews from June to September in both 2009 and 2012, except for the Laurentians administrative region, where data collection in 2009 was completed by June 23 – before the opening of a casino in the city of Mont-Tremblant. The Research Ethics Board of Concordia University approved the study, and informed consent was obtained from each participant.

Sampling design

In both surveys, sampling was conducted in two stages, stratified and non-proportional. Private households were selected by random digit dialing, and one adult per household was selected randomly. The 2009 sample was stratified geographically according to the 16 health regions comparable with the Ministry of Health planning areas. Sample sizes were proportional to the square root of the number of census households in each region. In 2012, stratification was performed by drawing samples from seven distinct regions according to Statistics Canada's classifications: 1) the census metropolitan area (CMA) of Montreal; 2) the five remaining CMAs (including Quebec City, Sherbrooke, Ottawa-Gatineau, Trois-Rivières and Saguenay); and 3) all non-CMA areas. Given the under-representation of young men in the 2009 survey, male participants aged 18 to 35 were oversampled in the 2012 survey to replicate their proportion in the general population according to census data.

Data were weighted to adjust for non-response and the multi-stage cluster sampling design, as well as to align the results with the information on the Quebec adult population available from the census.

Survey measures

Participation in Gambling Activities

Respondents' gambling participation during the previous 12 months was assessed for 11 activities, including lotteries, bingo, horse racing, slot machines, video lottery terminals (VLTs), poker, table games excluding poker, keno, sports betting, card games and games of skill. Potential responses were “yes”, “no”, “don't know”, and “refuse to answer”. The gambler group consisted of those who reported betting or spending money on at least one of the 11 listed activities. To identify lifetime non-gamblers, past-year non-gamblers were asked to report whether they have ever bet or spent money on games of chance.

Problem Gambling Status

The overall score on the PGSI, a quantitative subsection of the Canadian Problem Gambling Index, was used to assess the severity of gambling problems. The PGSI consists of nine items calling for responses reported on a 4-point Likert scale (“never”,

Table 1. Gambling prevalence among Quebec adults

	2009 (N = 11,888)		2012 (N = 12,008)		Odds ratio	99% confidence interval (CI OR)
	%	CI%	%	CI%		
Lifetime non-gamblers	13.6	12.6–14.8	16.4	15.1–17.8	1.24**	1.09–1.42
Past-year gambling Games (12 months)	70.5	69.1–71.9	66.2	64.5–67.9	0.82**	0.74–0.91
Lotteries	65.2	63.7–66.7	60.6	58.9–62.3	0.82**	0.74–0.91
Slot machines	10.1	9.2–11.1	9.7	8.6–10.9	0.95	0.81–1.13
Skill games	3.8	3.1–4.6	4.9	4.2–5.7	1.32*	1.01–1.72
Table poker	4.7	3.9–5.5	4.7	4.0–5.4	1.00	0.79–1.27
Bingo	4.6	4.0–5.2	4.2	3.5–4.9	0.91	0.73–1.14
VLTs	4.6	3.9–5.4	4.1	3.4–5.0	0.90	0.69–1.17
Table games	2.4	1.9–3.0	2.7	2.2–3.3	1.12	0.82–1.54
Sport lotteries/pools	3.0	2.4–3.7	2.5	2.1–3.1	0.85	0.63–1.14
Card/board games	3.2	2.7–3.7	2.4	1.8–3.1	0.75	0.55–1.02
Casino	10.3	9.4–11.4	13.5	12.3–14.8	1.36**	1.17–1.58
Internet	1.4	1.0–1.9	1.5	1.2–2.0	1.09	0.72–1.66

VLT, video lottery terminals.

Significant odds ratio: * $p \leq 0.01$, ** $p \leq 0.001$.

“sometimes”, “most of the time”, “almost always”). The PGSI demonstrates strong internal validity and reliability as well as satisfactory temporal reliability.¹⁴ Respondents were categorized as 1) non-problem gamblers (score of 0); 2) low-risk gamblers (1 or 2); 3) moderate-risk gamblers (3 to 7); and 4) problem gamblers (8+). Because of low numbers of problem gamblers, moderate-risk and problem gambler categories were merged to prevent any risk of disclosure and provide reliable estimates. Information was gathered on the respondents’ sex, age, level of education, income and work status.

Analyses

Analyses were conducted to reveal gambling prevalence and gambling problem severity among Quebec adults and to verify whether these habits varied between 2009 and 2012. Descriptive analyses and pairwise comparisons based on estimated marginal means were performed using Stata (Statcorp LP, TX). Logistic regressions were further performed to verify whether changes in individual gambling habits between 2009 and 2012 were distributed equally across sex, age, socio-economic status and education level. All standard errors were obtained by taking into account the sampling plan with clustering effects. As we were dealing with large sample sizes, the level of significance was set at $p \leq 0.01$.

RESULTS

The prevalence of lifetime non-gamblers in Quebec’s adult population increased from 13.6% in 2009 to 16.4% in 2012, and past-year gambling participation decreased from 70.5% to 66.2% (Table 1).

An inspection of trends for specific gambling activities reveals a significant decrease in participation rates from 2009 to 2012 for lotteries (65.2% vs. 60.6%) and a significant increase in participation in games of skill (3.8% vs. 4.9%). Participation in other popular games, including table poker, bingo, slot machines and VLTs, remained steady over the four-year period. Regarding gambling settings, the results indicate that, between 2009 and 2012, the prevalence of gambling on the Internet remained

stable, whereas the prevalence of gambling in casinos – in Quebec or elsewhere – increased significantly from 10.3% to 13.5%.

Logistic regression analyses were performed to examine the effect of socio-demographic characteristics on changes in gambling participation (Table 2).

The results reveal that interaction terms between the year of study and demographic variables, including sex, age, marital status, household income, employment status and education, were not statistically significant. Thus, changes in gambling patterns between 2009 and 2012 were not contingent on the demographic characteristics of gamblers, and a decrease in gambling prevalence was observed across the board. Generally, in 2009 and 2012, gambling participation was significantly higher among men, middle-aged respondents, people who were active in the labour market, and those holding a high school diploma or college degree. Gambling participation was also significantly higher among married, widowed, separated or divorced people and those reporting a household income of \$20,000 or more.

Comparing the prevalence of various types of gambler reveals that the proportion of the moderate-risk and problem gamblers combined and the proportion of low-risk gamblers remained unchanged between 2009 and 2012, whereas the prevalence of non-problem gamblers decreased significantly from 66.1% in 2009 to 61.5% in 2012 (Figure 1).

DISCUSSION

Gambling patterns and trends in Quebec’s population between 2009 and 2012 reveal a significant decrease in the proportion of past-year gamblers, which is mostly attributable to a decline in the proportion of non-problem gamblers. This decline occurred in spite of an increase in opportunities for gambling in the province. In 2009, the state monopoly, Loto-Quebec, opened a new casino in the tourist area of Mont-Tremblant. In 2010, it launched the first regulated online gambling site, Espacejeux, with increasingly diversified offerings over the years. The observed decrease in Quebec accompanies a general worldwide downward trend in gambling, which followed a significant worldwide increase in overall gambling participation between the 1970s and the turn of the millennium.¹⁵

Table 2. Gambling prevalence among Quebec adults by socio-demographic characteristic

	2009 (N = 11,888)		2012 (N = 12,008)		Main effect		Main effect		Interaction effect <i>p</i> value
	%	CI%	%	CI%	Year		Socio-demographic		
					OR	CI OR	OR	CI OR	
Overall gambling	70.5	69.1–71.9	66.2	64.5–67.9	0.82**	0.74–0.91	–	–	–
Sex									
Female	68.1	66.2–69.9	64.0	61.5–66.5	0.82**	0.74–0.91	ref.	ref.	0.6234
Male	73.1	70.8–75.2	68.5	66.3–70.7	–	–	1.24**	1.12–1.38	–
Age group (years)									
18–24	62.0	55.3–68.2	59.0	53.1–65.5	0.82**	0.74–0.90	ref.	ref.	0.1745
25–44	70.0	67.4–72.5	65.4	62.1–68.5	–	–	1.37**	1.10–1.70	–
45–64	76.8	75.0–78.6	71.2	68.7–73.6	–	–	1.86**	1.51–2.30	–
65 and older	64.3	61.1–67.3	62.2	59.1–65.1	–	–	1.13	0.91–1.40	–
Employment status									
Self-employed	68.3	63.7–72.6	69.3	63.4–74.6	0.82**	0.74–0.91	ref.	ref.	0.1087
Employed	75.9	73.8–77.8	70.3	67.9–72.6	–	–	1.24*	1.03–1.49	–
Student, on leave, stay at home or unemployed	61.7	57.5–65.6	56.4	51.6–61.0	–	–	0.66**	0.53–0.81	–
Retired	68.5	65.9–71.0	65.2	62.5–67.8	–	–	0.92	0.77–1.11	–
Household income									
<\$20,000	59.2	54.4–63.9	50.1	45.1–55.0	0.78**	0.70–0.87	ref.	ref.	0.8008
\$20,000 to \$39,999	71.1	67.8–74.2	66.3	62.7–69.7	–	–	1.83**	1.53–2.19	–
\$40,000 to \$59,999	74.2	70.7–77.5	69.0	65.1–72.7	–	–	2.11**	1.75–2.55	–
\$60,000 to \$79,999	78.3	74.3–81.9	74.9	70.6–78.7	–	–	2.74**	2.22–3.38	–
≥\$80,000	75.7	72.8–78.3	71.3	68.1–74.4	–	–	2.32**	1.96–2.77	–
Household income									
Low income	55.9	50.0–61.7	46.6	40.5–52.9	0.77**	0.69–0.86	ref.	ref.	0.7322
Lower middle income	70.2	66.6–73.5	63.6	59.6–67.5	–	–	1.93**	1.56–2.38	–
Upper middle income	75.3	72.6–77.7	70.8	68.0–73.5	–	–	2.59**	2.13–3.16	–
Higher income	76.1	73.6–78.4	71.7	68.9–74.4	–	–	2.71**	2.22–3.30	–
Marital status									
Single, never married	65.6	61.9–69.2	60.4	56.3–64.4	0.82**	0.74–0.91	ref.	ref.	0.4673
Married	71.3	69.1–73.4	66.1	63.3–68.7	–	–	1.29**	1.12–1.49	–
De facto union	75.9	73.2–78.3	74.2	71.2–77.0	–	–	1.77**	1.51–2.07	–
Widowed, separated, divorced	69.5	66.3–72.5	65.3	61.7–68.9	–	–	1.22*	1.03–1.43	–
Education									
Some high school	68.6	64.8–72.2	62.4	58.4–66.3	0.83**	0.75–0.92	ref.	ref.	0.3884
High school diploma	75.0	72.5–77.4	69.9	66.9–72.8	–	–	1.39**	1.19–1.62	–
College (CEGEP) degree	72.2	69.0–75.1	70.2	66.5–73.6	–	–	1.30**	1.10–1.53	–
University degree	65.3	62.6–68.0	61.8	58.6–64.8	–	–	0.92	0.79–1.07	–

CI, 99% confidence interval; OR, odds ratio; CEGEP, Collège d'enseignement général et professionnel.

Significant OR: * $p \leq 0.01$, ** $p \leq 0.001$.

We suggest two hypotheses for this observed downward trend in gambling. Shaffer has proposed the adaptation hypothesis, which states that after the novelty of initial exposure,

Figure 1. Severity of gambling problems among Quebec adults (2009, N = 11,888; 2012, N = 12,008)

individuals and populations gradually adapt to the risks and hazards associated with potential objects of addiction; thus, prevalence rates plateau or decline.¹⁶ Another explanation might be that gambling offerings have failed to respond to the demand of the younger generation for new types of games and new forms of gambling entertainment in Quebec over the last decade. For example, the niche of sports betting is on the rise in worldwide popularity. However, unlike Great Britain and France,^{3,17} where many types of sports betting are available and where gambling participation is not declining, Quebec has not yet taken advantage of sports betting's popularity in its population. Hockey is the national sport, and hockey pools are a favourite among fans and supporters at an informal level. Yet, there are no attractive options for this type of sports betting offered by the state monopoly. However, in September 2014, a process was opened to solicit proposals for the acquisition of a platform that would allow a greater selection of hockey pools for Quebecers.¹⁸ The commercial results of this endeavour are not yet known.

Although overall gambling prevalence is declining, the prevalence of gambling problems in Quebec presents a different pattern. The proportion of gambling problems remained stable over the four-year period. One cannot exclude the possibility of

low service utilization and low retention in treatment.¹⁹ Indeed, limited health literacy with regard to addiction services or uncertainty about their efficacy and the shame of gambling problems may represent obstacles to accessing services.²⁰ Furthermore, problem gamblers present a complex clinical picture marked by co-occurring disorders and associated problems, which often pose a barrier to support and treatment. Therefore, better detection and referral systems by first-line workers are the key to providing easier access to treatment. In addition, we recommend that health care services should be sensitive to all associated problems of gamblers.

This study's findings converge with overall global trends of decreasing gambling participation and a stabilization of problem gambling. Given the scarcity of national Canadian data on gambling, the lack of data on trends and the variability among provincial rates of gambling participation and problems, further focus is needed with regard to interprovincial comparisons to tease out the role of potential contextual factors. Variations among provinces could be examined from the perspective of factors such as elements of population demographic composition, gambling market characteristics (e.g., offerings and advertisements) and, more recently, the availability of regulated online gambling. For example, comparisons could be drawn between provinces that offer regulated online gambling (e.g., British Columbia, Quebec, Manitoba and, shortly, Ontario) and those where online gambling is unregulated. This diversity of provincial contexts provides a unique opportunity to conduct a quasi-experimental design study in which all provinces are tied to the federal *Criminal Code*, but each provincial government has the legal responsibility to manage and conduct gambling within its own jurisdiction.

The findings of this study need to be interpreted with caution. Inherent in all self-reported data, including survey data, is the issue of under-reporting. Studies on alcohol use have shown an under-reporting of alcohol consumption, especially among heavy drinkers, and the same concern may apply to gamblers, particularly problem gamblers.^{21–23} Williams and Volberg have extensively documented the influence of surveys' methodological characteristics on the under-reporting and underestimation of problem gambling.²⁴

CONCLUSION

Given the potential for under-reporting of gambling problems and the stability of the proportion of problem gamblers over the four-year span, the allocation of public resources for health care services should be maintained, as it should for secondary prevention measures aimed at those repeatedly identified as most vulnerable. Finally, information about gambling harm is paramount for all the population. Although, gambling is part of a larger issue, and its complexity cannot be addressed in full in a single study, problems deriving from gambling should nonetheless be taken into account in social policy, social services, and treatment settings.

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RÉSUMÉ

OBJECTIFS : Décrire les pratiques de jeux de hasard et d'argent (JHA) au Québec entre 2009 et 2012, tenant compte du fait qu'au Canada, l'allocation de fonds publics pour la prévention des risques associés aux pratiques de JHA se base sur des données de prévalence valides et les tendances observées dans les populations vulnérables.

MÉTHODES : Les données proviennent des vagues transversales de l'Enquête sur les habitudes de jeu des Québécois (ENHJEU-Québec) de 2009 et 2012. Les échantillons incluent 11 888 répondants en 2009 et 12 008 répondants en 2012.

RÉSULTATS : La prévalence des individus n'ayant jamais joué à des JHA dans la population adulte du Québec a augmenté de 13,6 % en 2009 à 16,4 % en 2012, tandis que la participation aux JHA a diminué de 70,5 % à

66,2 % dans la dernière année. Les analyses ne révèlent pas d'associations significatives entre les habitudes de JHA et les caractéristiques démographiques des répondants; la prévalence des JHA a généralement décru pour tous les sous-groupes sociodémographiques. La proportion de joueurs problématiques et de joueurs à faible risque est demeurée inchangée, alors que la prévalence des joueurs non-problématiques a diminué significativement de 66,1 % en 2009 à 61,5 % en 2012.

CONCLUSION : La participation aux JHA au Québec est en diminution, bien que la proportion de joueurs reste stable. Étant donné ces résultats, l'allocation de ressources publiques pour les services de santé doit être maintenue. Les efforts pour la prévention primaire et secondaire doivent être déployés ou maintenus pour prévenir les méfaits associés aux JHA.

MOTS CLÉS : JHA; jeu pathologique; risque; études de prévalence; épidémiologie