

Electronic Gambling Machines Outside Casinos: An Environmental Study of Risk Factors in Gambling Venues

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Abstract

Electronic gambling machine (EGM) licenses are meant to be a complementary revenue source for liquor establishments. Considering this, retailers with more than one license to operate EGMs may benefit from promoting their gambling offer, which may in turn facilitate excessive gambling behaviours. This study compares establishments that possess a single license to operate EGMs with those that are multi-licensed regarding four environmental risk factors: advertisements, automated teller machines, isolated gambling area, and EGM operating hours. A field observation was carried out by seven pairs of observers in 166 establishments in Capitale-Nationale de Québec (QC), Canada. In each establishment, observers had to complete an observational grid on an iPod touch to gather environmental data related to the identified variables. Results from the stepwise logistic regression show that being a multi-licensed establishment increases the chance of having longer operating hours and displaying non-regulated advertisements that promote gambling. Multi-licensed establishments tend to offer a more attractive gambling environment, which may increase the risk of excessive gambling. Reinforcement of regulations for responsible gambling is discussed.

Keywords: environmental risk factors, gambling, electronic gambling machine, gambling venues, responsible gambling

Résumé

Pour les établissements ayant un permis d'alcool, posséder une licence d'exploitation d'appareils de jeux électroniques (AJE) se traduit par un revenu complémentaire. De ce fait, les détaillants ayant plus d'une licence d'exploitation d'AJE peuvent tirer

parti de la promotion de leur offre de jeu, ce qui, en retour, peut encourager des comportements de jeu excessifs. Cette étude compare les établissements qui détiennent une seule licence d'exploitation d'AJE avec ceux qui en détiennent plusieurs en tenant compte de quatre facteurs de risque environnementaux : la publicité, les guichets automatiques, la zone de jeu isolée et les heures d'exploitation des AJE. Une observation sur le terrain a été effectuée par sept paires d'observateurs dans 166 établissements de Capitale-Nationale de Québec (QC), Canada. Dans chaque établissement, ils ont recueilli des données environnementales liées aux variables identifiées qu'ils ont compilées dans une grille d'observation sur un iPod touch. Les résultats du modèle logistique utilisant la régression séquentielle montrent que le fait, pour un établissement, d'avoir plusieurs licences augmente la possibilité de prolonger les heures d'exploitation et d'afficher des publicités non réglementées qui font la promotion du jeu. Les établissements ayant plusieurs licences ont tendance à offrir un environnement de jeu plus attrayant, ce qui peut accroître le risque de jeu excessif. Un resserrement des règles pour une réglementation responsable du jeu est à l'étude.

Introduction

Electronic gambling machines (EGMs) are devices that offer a variety of games in which the outcomes are based on chance and through which players must risk money in the hopes of a possible higher return on their investment (Turner & Horbay, 2004). In Canada, EGMs are found in gambling venues such as casinos, racetracks, and bingo facilities. However, some provinces, such as New Brunswick, Alberta, and Quebec, allow them in pubs, bars, and some restaurants that do not primarily aim to offer gambling activities (Alberta Gaming and Liquor Commission, 2018; Atlantic Lottery, 2018; Paradis, 2006). In Canada, EGMs outside casinos are called video lottery terminals (VLTs), which are different from EGMs found in casinos (i.e., slot machines). VLTs are multi-game platforms that offer slot games, as well as video poker and other games such as blackjack and keno. VLTs and slot machines are similar, however, in terms of payback percentage (92% for VLTs and 90% for slot machines; Turner & Horbay, 2004). In 2016 in the province of Quebec, 6,468 EGMs were located in casinos and 11,000 were located in non-casino establishments (Canadian Partnership for Responsible Gambling). In 2019, EGMs outside casinos generated the same revenue for Loto-Québec as did all four casinos in the province combined: CAN\$895 million (Loto-Québec, 2019). EGMs outside casinos generated 31.6% of the total revenue for Loto-Québec that year, the same percentage as that from casinos (Loto-Québec, 2019).

EGM devices are relevant to the study of gambling problems and their related harms, defined by Wardle, Reith, Best, McDaid, and Platt (2018) as the adverse impacts from gambling—short-lived or persistent—on the health and well-being of individuals, families, communities, and society. These harms are understood as being

on a continuum in that they vary in terms of deviation from healthy gambling. Deviation is apparent, as described in the Canadian Problem Gambling Index (Ferris & Wynne, 2001), in the distinct dimensions of the gambling experience such as gambling involvement (type/frequency of gambling, increased duration of sessions, increased expenditure), gambling problem-related behaviours (loss of control, increased motivation, chasing, borrowing money, lying to hide one's problems, faulty problem recognition), consequences of these behaviours (personal and social), and other correlates of this problematic state, such as one's gambling history (particularly the impact of an initial big win) and the many cognitive biases involved.

The particular place of EGMs in the gambling environment is concerning regarding this problem. Indeed, EGMs outside casinos are easily available (O'Neil & Whetton, 2004; Turner & Horbay, 2004), and accessibility¹ is known to be an important factor in the development of gambling problems (Afifi, Cox, Martens, Sareen, & Enns, 2009). For instance, gambling problems in Australia are 3 times higher in the Victoria region, where EGMs are found in 540 non-casino establishments, compared with that in the Western region, where EGMs are found in only one casino (O'Neil & Whetton, 2004). In Canada, in the province of Quebec, Sévigny et al. (2016) compared gambling behaviours of 143 gamblers who mainly (over 70% of the time) visited small establishments (i.e., that operate five to 10 EGMs) with those of 66 gamblers who mostly visited the Salon de jeu de Québec, a gambling hall² that comprises 335 EGMs. Results indicate that almost 2 times more problematic gamblers (operationalized as at-risk or pathological gamblers in this study) were found in establishments with a low number of EGMs than in the Salon de jeu.

The results of studies by O'Neil and Whetton (2004) and Sévigny et al. (2016) suggest that increased accessibility of EGMs (many establishments vs. one large establishment with a high concentration of EGMs) is associated with gambling problems. Problem gamblers are inclined to determine their preferred gambling establishment based on proximity to their home (Thorne, Goodwin, Langham, Rockloff, & Rose, 2016). However, accessibility also depends on the number of operating hours of the EGM (Moore, Thomas, Kyrios, Bates, & Meredyth, 2011). In this vein, cross-sectional data collected in Australia indicate a positive correlation between the number of EGM operating hours and the number of bets made (The Centre for Gambling Research Australian National University, 2003). Moreover, data compiled in Nova Scotia (Canada) before and 3 months after the implementation of a regulation stipulating that EGMs are not to be operated past midnight (rather than until 4 or 6 a.m.) shows a 5% to 9% decrease in EGM revenue. In addition, 18% of problem gamblers reported a reduction in their time spent gambling following the

¹The notion of accessibility used throughout the manuscript refers to physical accessibility described by Hing and Haw (2010), which includes aspects such as the number of opportunities to gamble, the number of venues in a defined area, the gambling opportunities they offer, their spatial distribution, and their opening hours.

²There are two gambling halls in the province of Quebec. Gambling halls are similar to a small casino in terms of number of EGMs, but other gambling activities are limited.

implementation of the regulation (Nova Scotia Gaming Corporation, 2006). Thus, a decrease in EGM accessibility when defined as operating hours also appears to be associated with a reduction in gambling behaviours.

In a gambling establishment, the decision to gamble or not can be influenced by environmental factors other than accessibility, such as advertisements, access to money, or visibility. Several causal relations between gambling advertisements and gambling problems have been hypothesized in the literature. For example, advertising could potentially be understood as a factor that stimulates the development of gambling problems, exacerbates already existing problems, introduces gamblers to other forms of gambling, and makes the act of gambling more socially accepted. Although these claims, on the whole, have presented little empirical support (Binde, 2014), some studies have offered supporting results. For instance, 46% of pathological gamblers who participated in a pharmacological trial indicated that advertisements were a trigger to gamble (Grant & Kim, 2001). Amery (2001) showed a relation between gambling and gambling advertising: People who were more engaged in gambling were more likely to remember gambling advertising. Salonen, Hellman, Latvala, and Castren (2018) showed that gamblers recruited in a gambling help clinic perceived gambling advertising as obtrusive and as a driving force for gambling. Likewise, five of the 25 pathological gamblers interviewed by Binde (2009) reported that gambling advertisements made it more difficult to reduce or quit gambling because they stimulate gambling behaviours. Even advertisements for gambling treatment containing images associated with gambling may arouse gambling urges (Giroux et al., 2015). Advertising of gambling products may contribute to problem gambling by encouraging people to begin or increase gambling behaviours (Binde, 2014). Finally, gambling advertising may contribute to problem gambling by stimulating urges to gamble in vulnerable individuals (Hodgins, Stea, & Grant, 2011; Potenza, 2014; Rogers et al., 2019). Together, this collection of studies points towards the idea that gambling advertising contributes to gambling behaviours and attitudes. All establishments that have EGMs in Quebec are allowed to have regulated Loto-Québec advertisements, but no promotion that encourages gambling is permitted according to the Code of Responsible Commercialization (SEJQ, April 2015). Since 2006, tenants of establishments that operate EGMs are required to display the Code of Responsible Commercialization in gambling areas of their establishment. The code contains 20 regulations that tenants and employees have vowed to comply with on pain of enforcement of progressive measures. Regulations concern employees' conduct (e.g., prohibiting loans and cash advances to customers) and the gambling environment (e.g., EGM localization, gambling area layout).

This code also addresses automated teller machines (ATMs), as having access to money quickly may facilitate gambling behaviours on EGMs. For example, the presence of an ATM near an EGM may bring gamblers to lose more money than would be the case without an ATM (Griffiths & Parke, 2003). In addition, occasional at-risk or problem gamblers who took part in focus groups ($N = 99$) considered ATMs in gambling establishments to contribute to loss of control

(Ladouceur, Jacques, Sévigny, & Cantinotti, 2005). This result corroborates those of Blaszczynski, Sharpe, and Walker (2001) that showed with a sample of 634 participants recruited in seven hotels and four clubs in New South Wales (Australia) that the use of an ATM is one of the two variables that predicts considerable losses on EGMs, the other being alcohol consumption.

Another environmental factor that may influence gambling behaviours in an establishment is the layout of EGM operating areas, especially when it provides isolation for gamblers. EGM gamblers should not be isolated, according to the code (SEJQ, April 2015). Pathological gamblers prefer to gamble in an isolated environment even if they feel that this could facilitate loss of control and excessive gambling habits (Ladouceur et al., 2005). Ladouceur et al. (2005) conducted an empirical test in a laboratory setting to study the effect of isolation on gamblers' behaviours (number of trials played and amount of money gambled). However, no significant difference was found; the authors suggest that experimentation in a laboratory setting (limited time and money available for gambling) may have contributed to the absence of significant effects. However, Mishra, Morgan, Lalumière, and Williams (2010) did observe an impact of being out of view of others on gambling habits in a laboratory setting. Among 180 participants, of whom 62 were at-risk gamblers and 51 were problem gamblers, the authors reported that those who gambled on EGMs that were not isolated and thus who could be observed by other patrons gambled significantly less than did gamblers who were not observed by others.

In the province of Quebec, establishments that serve alcohol (e.g., bars, breweries) must possess a liquor license issued by the Régie des alcools, des courses et des jeux (RACJ), an organization that regulates alcohol and gambling activities (Lois du Québec, 2012). A liquor license allows retailers to have an EGM licence and legally operate a maximum of five EGMs. Whether retailers receive EGMs or not is a decision made by Loto-Québec. The goal of this maximum of five per license is to deter the presence of "mini-casinos." Retailers who wish to operate more than five EGMs can split their establishment into multiple bar sections and therefore ask for a supplementary liquor and EGM license. The reason behind this is simple: EGM operation by retailers can be lucrative, as each EGM provides a commission of up to 22% of the machine's net revenues (money inserted into the EGM minus gains made by gamblers; SLVQ³ communications service, personal communication, July 28, 2014). This proportion represents an annual average of CAN\$17,000 per EGM (Gagnon, 2016), approximately CAN\$85,000 for an establishment with one license and over CAN\$170,000 for establishments with more than one license. The operation of EGMs ensures the economic survival of a few of these establishments (Pelletier, 2008). To increase their profit margin, retailers may obtain authorization to operate more than five EGMs. Thus, it is plausible that multi-licensed establishments put more effort into making their gambling offer more interesting for potential customers, which in turn could maximize their commercial investment in EGMs.

³The SLVQ (Société des loteries vidéo du Québec) has since been restructured and is now known as the SEJQ (Société des établissements de jeux du Québec).

Inversely, retailers who possess only one license possibly use financial profits generated by EGMs as supplementary income.

The aim of this study was to explore environmental factors that may influence the behaviours of gamblers who visit establishments that possess either one EGM license or more than one EGM license (multi-licensed) in Capitale-Nationale of Quebec, Quebec, Canada (that are not casinos nor gambling halls). We expected that, compared with being an establishment with one license, being a multi-licensed establishment would increase the chances of having (1) advertisements of gambling offers inside and outside the establishment, (2) an ATM in the establishment, (3) EGMs in an isolated area of the establishment, and (4) a higher mean number of weekly operating hours.

Method

Data Collection: Establishments

From information transmitted by the RACJ to the Direction régionale de santé publique (DRSP) of [Quebec] on February 2, 2012,⁴ a list of 166 establishments to visit in the [Capitale-Nationale of Quebec] was created. This study was part of a wider mandate issued by the DRSP of [Québec] to document the gambling environment of establishments possessing a license to operate EGMs.

To be included in the study, establishments had to have EGMs in operation at the time of the field observation. Because two establishments were permanently closed and 40 others did not operate EGMs despite possessing a license to do so, in total, 124 establishments were included in the study, among which 101 possessed one license (five EGMs or less) and 23 were multi-licensed (six EGMs or more).

The mean number of EGMs per establishment was 4.69 ($SD = 0.9$; minimum = 1; maximum = 5) for one-license establishments and 12.96 ($SD = 5.6$; minimum = 10; maximum = 35) for multi-licensed establishments. Among establishments with one license, 88.1% operated the maximum permitted number of five EGMs. For multi-licensed establishments, 60.9% operated 10 EGMs; none operated fewer than 10.

Instrument: Observation Grid

Inspired by an observation grid developed for a similar study (Paradis, 2006), we divided the one used in the current study into two sections (A and B) comprising 66 questions in total (yes/no, multiple choice, and short answer). Items assessed environmental characteristics of the interior and exterior of the identified establishments, such as the name and type of establishment, availability of activities other

⁴The regulations for gambling environments (Code of Responsible Commercialization) have not changed since 2012.

Table 1
Operationalization of the Study Variables

Variable	Operationalization
Gambling advertisements inside and outside the establishment	The presence of gambling advertisements that are not regulated by Loto-Québec. They may be designed by retailers of establishments offering gambling-related activities or by independent companies that promote gambling activities (e.g., online poker). Non-standard advertisements include (1) advertisements for poker tournaments in the establishment, in another establishment, or online by a private company; (2) advertisements for a winner or an amount won during a gambling activity organized by the site; (3) advertisements for skill-based game tournaments in the establishment (e.g., pool, darts) with the possibility of making bets; and (4) displaying an image or a logo that refers to gambling.
ATM in gambling area	The distance between the ATM and the EGM is less than 1 m, the ATM is between two EGMs, or the ATM is over 1 m away from the EGM, but in the same section and visible from where EGMs are located.
Isolated EGM (away from the main area)	A discontinuity in the structure of the establishment that separates EGMs from the rest of the establishment. Discontinuities can be the following: (1) booth or partitions that hide gamblers from onlooking customers, (2) a distinct section or separate room on the same storey or another storey of the establishment, or (3) a section separate from the main environment, albeit still visible from it.
Total number of weekly hours of EGM operation	Compilation of the weekly number of business hours of each establishment adjusted for number of EGM operating hours permitted – from 8:00 a.m. to 3:00 a.m. for a maximum of 19 hr per day.

Note. ATM = automated teller machine; EGM = electronic gambling machine.

than gambling, brochures on gambling prevention near EGMs, visibility of EGMs from outside the establishment, and proximity of institutions for youth.

Environmental characteristics of interest were EGM operating hours of the establishment, number of EGMs in use, non-regulated gambling advertisements inside and outside the establishment, ATMs in the establishment, and isolated gambling areas.⁵ The operationalization of these variables is shown in Table 1.

Materials

iPod touch. The observation grid was formatted with iSurveySoft 2.10.0 software and programmed to four iPod touch 32 Go devices with an iOS 6.0.1 operating system.

⁵These variables were specifically chosen because empirical evidence supporting their impact on gambling behaviour seemed more robust than did other variables included in the grid.

Other material. Paper versions of the following documents were given to the observers: the observation grid, a document that detailed the procedure and measures to be taken in the event of problematic situations, a checklist of the experimentation phases, paper to draw the establishment layout, and the list of establishments to visit. Observers travelled by car to visit each establishment.

Procedure

Data collection was conducted via direct observation in each establishment without the knowledge of managers and their staff. Observations were carried out between 3:30 and 9:30 p.m., mainly from Monday to Friday. Data were recorded in real time with the iPod touch. In total, 18 evenings of field observations took place between November 1 and November 30, 2012.

Observers. Seven teams of observers, each consisting of two psychology undergraduate students, were trained by a psychology graduate student and a research professional on how to collect data and behave in the establishment. Observers signed compliance and confidentiality forms before proceeding with the field observation. Each evening, teams were assigned a list of 12 establishments and had to visit at least seven of them (i.e., technical difficulties or distance between establishments often made it impossible to visit all 12). One to three teams were in operation during each evening of data collection.

Field experimentation procedure. Before their departure, observation teams indicated their itinerary from the list of establishments to visit. On their arrival at the establishment, each observer completed their observation grid within 15 to 30 min. Each section of the observation grid (A and B) was assigned to a specific member of each team for the entire duration of data collection.

On entering the establishment, the observation team verified whether EGMs were present, and then ordered drinks at the bar. Next, they entered data into the iPod touch while visiting all sections of the establishment. After collecting data, the team observed the exterior environment for relevant data (e.g., advertisements, business hours of the establishment). To avoid issues with data collection due to technical difficulties that arose on five occasions with the iPod touch, the observers brought paper versions of the observation grid. After data were collected, observers continued their itinerary at the next establishment. When the evening ended, the team returned to Université Laval to bring back the study material. The iPod touch devices were pre-programmed to connect automatically to the institution's Internet network to transfer data over a secured server in SPSS form. Because this was an observational study, no ethics approval was necessary.

To ensure validity, two establishments were visited by all teams for an inter-rater agreement procedure. These two establishments were chosen randomly from the list of establishments with a Microsoft Excel formula. An inter-rater agreement of 91.9% was obtained and deemed satisfactory.

Analyses

Analyses were performed with IBM SPSS Statistics version 25 software. A binary logistic regression with the stepwise approach was performed to determine environmental characteristics that predicted group belonging. To remain in the model, an environmental characteristic had to have a statistical significance level of .05 or lower.

Results

Table 2 presents the descriptive statistics of the four identified environmental characteristics. Results of the stepwise binary logistic regression indicated that a model that included the EGM operating hours of the establishment ($\chi^2_w = 13.922$, $p < .001$) and non-regulated gambling advertisements inside and outside the establishment ($\chi^2_w = 6,412$, $p = .011$) explained 37.6% of the variance of group belonging (Nagelkerke $R^2 = 0.376$), and correctly classified 86.2% of the establishments. Table 3 presents the regression coefficients, their standard errors, and the odds ratio for the two significant environmental characteristics. The goodness-of-fit Hosmer-Lemeshow test is non-significant, showing the validity of the model at Step 1 ($\chi^2 = 6.337$, $p = .501$) and Step 2 ($\chi^2 = 3.384$, $p = .847$).

Discussion

This study aimed to explore the importance of environmental characteristics that can influence gambling behaviours by comparing establishments with a single EGM licence with those that are multi-licensed for EGMs. These characteristics included non-regulated advertisements, the presence of ATMs, isolated EGMs, and the number of weekly hours of EGM operation.

The hypothesis that being a multi-licensed establishment would increase the chances of advertising gambling through the use of non-regulated advertisements was

Table 2

Descriptive Statistics of Non-Regulated Advertisements, ATM Presence, Isolation of EGMs, and EGM Operating Hours by Group (Single vs. Multi-Licensed Establishments)

Variable	Single-licensed establishments ($n = 101$)	Multi-licensed establishments ($n = 23$)
Presence of non-regulated advertisements (%)	21.8	47.8
Presence of an ATM in the establishment (%)	72.3	95.7
EGMs isolated (%)	36.6	52.2
EGM weekly operating hours (M , [SD])	124.9 (15.2)	110.0 (17.8)

Note. ATM = automated teller machine; EGM = electronic gambling machine.

Table 3

Final Stepwise Binary Logistic Regression Analysis Predicting Type of Establishment (Single vs. Multi-Licensed Establishments)

Variable	Step 1			Step 2		
	<i>B</i>	<i>SE</i>	Exp(<i>B</i>)	<i>B</i>	<i>SE</i>	Exp(<i>B</i>)
EGM weekly operating hours	.105	.027	1.11	.117	.031	1.12
Non-regulated advertisements				1.47	0.58	4.341
Constant	-14.147	3.431	0.000	-16.264	4.040	0.000
Nagelkerke R^2	.305			.376		

Note. EGM = electronic gambling machine.

confirmed. Although Loto-Québec allows retailers to use official Loto-Québec advertisements to announce the presence of EGMs in their establishment, multi-licensed retailers also made their own advertisements. Examples of non-regulated advertisements found on-site were publicity for an upcoming poker tournament and gambling-related logos located around the gambling area such as “lucky 7s” or cherries. Retailers may be inclined to promote their gambling offer in such a way as to influence people to gamble in their establishment. For instance, the promotion of gambling in an establishment may give the impression that one is in a place created for that purpose.

The hypothesis that being a multi-licensed establishment would increase the likelihood of having an ATM in the establishment was not confirmed. Having an ATM on-site may be perceived as a service for gamblers by retailers, but it is also a service to other customers to buy alcohol or food. Only a limited percentage of gamblers in the study by Sévigny et al. (2016) identified this characteristic as influential when choosing a venue, whereas having an ATM on-site has been reported as influential for problem gamblers. Considering that the concept of negative expected returns in gambling is often misunderstood, however (Chrétien, Giroux, Goulet, Jacques, & Bouchard, 2017; Ladouceur & Walker, 1996), offering access to an ATM may encourage gamblers to withdraw funds to continue gambling or to chase their losses. Consequently, they may be at higher risk to spend more money than initially planned without having to leave the establishment.

The hypothesis according to which being a multi-licensed establishment would augment the chances of having EGMs isolated from the main area was not confirmed. However, half of the sample of multi-licensed establishments and a third of single-licensed establishments did have EGMs that were separated from the main floor. These establishments appear to preserve gamblers’ anonymity, which is appreciated by gamblers (Ladouceur et al., 2005). Considering that gambling out of the sight of others is associated with an increase in time and money spent gambling (Mishra et al., 2010), this result is concerning.

Finally, the hypothesis concerning weekly EGM operating hours was confirmed: Multi-licensed establishments are more likely to operate their EGMs for longer than

single-licensed establishments do (i.e., 14 hours longer in this study). This finding suggests that gamblers who visit these multi-licensed establishments may be at higher risk for gambling excessively, as increased gambling availability is associated with increased gambling participation (Sévigny, Ladouceur, Jacques, & Cantinotti, 2008; Welte, Barnes, Tidwell, & Hoffman, 2009). These findings may result from the inclination of owners of multi-licensed venues' towards making gambling a bigger part of their business, as longer operating hours mean higher potential income for retailers. Alternative explanations for the difference found between mean opening hours could be that the multi-licensed venues had a larger customer base, greater staffing resources, and/or a more diverse product offering.

In sum, the findings of this study suggest that gambling environments in multi-licensed establishments could be geared towards promoting gambling and attracting gamblers, whether through advertising or by offering increased hours of operation. As discussed earlier, advertisements may give customers the impression that the establishment is focused on gambling. Furthermore, the literature is clear that the more that EGMs are available, the more income they produce. This raises the question of whether the primary goal of certain retailers who run multi-licensed establishments is their gambling offer over their alcohol service, the latter of which is a priori the main activity for this type of business. Some of these establishments were set up in a manner that mimicked the environmental organization of casinos (i.e., mini-casinos, where a few tables are placed in a small square room surrounded by over 10 EGMs), with a few using a business name that refers to gambling. If this assumption proves true, retailers may benefit from promoting their gambling offer from a financial point of view. Problem gamblers participating in a recent qualitative study reported that they appreciated establishments with more than one EGM because they tend to believe that more EGMs in an establishment equates to higher odds of winning (Thorne et al., 2016). All of the establishments in this study had more than one EGM; therefore, it is still unclear whether this reasoning could be applied to establishments with one license versus those that are multi-licensed. Although more studies are required, the results of the present study suggest that policy makers could pay attention to the variables identified in the establishments under their regulation. Indeed, these variables may serve as indicators of a mini-casino type of setting. Loto-Quebec should take a more proactive role by visiting the establishments more often to ensure that retailers comply with the code. Firm actions for transgression (e.g., EGM removal for a period of time or financial penalties) should be implemented. The grey area obscuring the roles of the RACJ and Loto-Quebec regarding the enforcement of gambling regulations does not help promote a safer gambling environment.

Further, the results show that an important proportion of establishments, whether single- or multi-licensed, do not totally comply with regulations from the Code of Responsible Commercialization. For example, the code proscribes non-regulated advertisements and isolation of EGMs; a considerable proportion of establishments in this study did not comply with at least one of these regulations (26.6% for non-regulated advertisements and 39.5% for isolation of EGMs). Thus, are these

regulations well understood by retailers? Does their non-compliance with the regulations result in fewer consequences than benefits?

The present study has some limitations. The participation of many observers may have affected the uniformity of data collection. Thus, precautionary measures were taken to minimize this possibility: uniform training for observers, step-by-step guide to standardize the observation procedure, and an inter-rater agreement procedure. In addition, all inferences from the results of gamblers and their behaviour cannot be verified within the scope of the present study, as all data originated from a gambling environment rather than from gambling behaviour. Future studies should verify whether gamblers who visit multi-licensed establishments experience more negative consequences as a result of gambling. Because environmental risk factors alone cannot predict gambling problems, further studies are required to determine the extent of their role in developing or maintaining gambling problems and consequently, which measures must be used to reduce their adverse impacts.

The main contribution of this study is that it focused on environmental characteristics of gambling establishments that have rarely been studied objectively. Results raise concerns about how establishments, especially those that are multi-licensed, design their gambling environment and how that environment could be detrimental to gamblers. The present study helped document this aspect, as studies on gambling disorders have often focused on individual factors to the detriment of environmental factors (Sévigny et al., 2016) even though gambling behaviours result from an interaction between both factors (Sharpe, 2002).

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Submitted December 10, 2019; accepted December 11, 2019. This article was peer reviewed. All URLs were available at the time of submission.

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Competing interests: None declared (all authors).

Ethics approval: Not required.

Acknowledgements: The data collection was supported by the Agence de la santé et des services sociaux de la Capitale-Nationale. The research team was also supported by the Fonds de recherche du Québec – Société et culture (FRQ-SC; Grant number 2015-SE-179146). The Agence de la santé et des services sociaux de la Capitale-Nationale approved the research questions, but had no involvement in the research design, methodology, experimentation, analyses, or write-up of this study, nor did the FRQ-SC. We wish to thank Jonathan Mercier, Marc-André Bouchard, Marie-Christine Auger, Marilyn Cloutier, Philippe Bienvenue, Pierre-Yves Bergeron, Sebastien Moisan, and Simon-Pier Rivest-Tourangeau for their collaboration in the data collection phase of this study. We also wish to thank Mélanie Dixon and Etienne Gagnon for their collaboration in the last revisions.