

## special section

# The prevalence of problem gambling and gambling-related behaviours among older adults in Ontario

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## Abstract

As the proportion of Canadians over the age of 55 continues to rise, it accordingly becomes increasingly important to understand the implications that their leisure activities have for their physical and mental health. Gambling is a form of leisure that presents relatively high risk for its participants and remains a popular leisure pursuit among older adults. The current study uses a representative survey of 2,187 adults over the age of 55 in Ontario to explore problem gambling and gambling-related behaviours among older adults. The findings show that 1.8% of the population over the age 55 were classified as experiencing moderate-to-severe problem gambling. While differences across sex were observed in types of gambling, attitudes towards gambling, and frequency of gambling, no significance difference in problem gambling was observed. Findings are discussed in relation to previous findings on older adults' gambling patterns and their implications for mental, physical and financial well-being.

**Keywords:** older adults, survey, problem gambling, Ontario

## Résumé

Avec la constante augmentation de la proportion de Canadiens âgés de plus de 55 ans, il devient de plus en plus important de comprendre les répercussions qu'ont leurs activités de loisir sur leur santé physique et mentale. Le jeu est une forme de loisir qui présente un risque relativement élevé chez les personnes qui s'y adonnent et demeure

un loisir populaire chez les personnes plus âgées. L'étude en question a utilisé un sondage représentatif auprès de 2187 adultes âgés de plus de 55 ans en Ontario pour explorer le jeu problématique et les comportements liés au jeu chez les personnes plus âgées. Les résultats montrent que 1,8 % de la population âgée de plus de 55 ans a été classée comme ayant un problème de jeu, de modéré à grave. Bien que des différences entre les sexes aient été observées dans les types de jeu, les attitudes à l'égard du jeu et la fréquence, aucune différence significative n'a été observée dans le jeu problématique. Les résultats sont examinés en lien avec des conclusions antérieures sur les habitudes de jeu des personnes plus âgées et leurs répercussions sur le bien-être mental, physique et financier.

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## Introduction

In Canada, gambling has become a common leisure activity among adults. As with other men and women, the majority of older adults (those aged 55 and older) participate in one or more forms of gambling over the course of one year (McCready, Mann, Zhao, Birchall, & Eves, 2010; Wiebe, Single, & Falkowski-Ham, 2001). Gambling provides significant tax revenues for governments and meaningful recreation and socialization for participants. For older adults in particular, these benefits can be attractive, and often organizations that provide services to older adults will arrange or facilitate gambling opportunities such as organized bus tours to casinos and bingo halls (McCready et al., 2014).

Gambling participation is relatively low among older adults compared to other cohorts. General population studies suggest that, among such men and women, gambling is relatively common but is also typically less frequently observed among the general adult population (McCready et al., 2010; Wiebe et al., 2001). For example, in Ontario 76.7% of adults over the age of 60 participated in some form of past-year gambling compared to 82.9% for all adult cohorts (Williams, Volberg, & Stevens, 2012). Similarly, problem or pathological gambling among older men and women is uncommon and occurs less frequently than among the general adult population (Desai, R. A., Desai, M. M., & Potenza, 2007; McCready et al., 2010; Welte, Barnes, Wiczorek, Tidwell, & Parker, 2002). Whereas older adults are more likely to spend money more frequently than younger adults on instant win lotteries, bingos, and coin slots/electronic gambling machines (EGMs) at casinos, older adults participate less frequently in most forms of gambling than do younger ones (McCready et al., 2010). Certain researchers have suggested that these overall lower participation rates reflect more conservative attitudes surrounding gambling among older men and women (Alberghetti & Collins 2015; Papoff & Norris, 2009). Other research has shown women present more negative attitudes towards gambling compared to men (Salonen, Alho, & Castrén, 2017). These attitudes can yield an important impact, as more positive attitudes towards gambling have been linked to

greater participation in turn (Martin et al., 2010; Salonen et al., 2014) and problem gambling (Chiu & Storm, 2010).

Despite lower rates of problem gambling and gambling participation existing research indicates that the consequences of problem gambling may be particularly devastating for older adults (e.g., Korn & Shaffer, 1999). Plans to increase the availability of gambling are particularly concerning considering that increased involvement in gambling as a recreational activity may in turn lead to greater harm among older adults (McNeily & Burke, 2002). Older adults who identify gambling as an important aspect of their recreation have been shown to support disproportionately high rates of problem gambling (Preston, Shapiro, & Keene, 2007). Significant disruptive life events, such as retirement, illness, and loss of family and loved ones might also predispose older adults to gambling and gambling problems (McCready, Mann, Zhao, & Eves, 2008; Munro, Cox-Bishop, McVey, & Munro, 2003). Many older men and women live on fixed incomes. These characteristics may make dealing with the financial consequences of problem gambling—gambling losses and debts—more difficult for older adults compared to younger ones (Levens, Dyer, Zubritsky, Knott, & Oslin, 2005; McCready et al., 2008). Given the unique risks and consequences associated with gambling for older adults, it is important to monitor the prevalence of gambling, and of gambling problems, for this age group. However, relatively few studies have thus far focused on gambling among this population in particular.

Previous research has identified gender as an important correlate of gambling and problem gambling among older adults, and as an area of valid concern. Differences between men and women, in both gambling behaviors and problem gambling, have not been adequately addressed in the gambling literature (see Holdsworth, Hing, & Breen, 2012, for review). Sex has been identified in certain studies as an important determinant of gambling behaviour and gambling problems, with male subjects more likely than females to be gamblers and to be problem gamblers (e.g., Afifi, Cox, Martens, Sareen, & Enns, 2010). The higher respective levels of problem gambling in men compared to women may have affected treatment and prevention practices in such a way that they are poorly suited to address the unique needs of women. Several studies have confirmed that existing programs tend to be male dominated and focus on men's needs (Kim et al., 2016; Kim, Hodgins, Bellringer, & Abbott, 2016; Quirk, Smith, Maddern, & Dickerson; Toneatto & Wang, 2009; Scannell et al., 2000). Among samples of older adults there is mixed evidence of gender differences in problem gambling with certain studies finding higher rates of PG among men (Ladd, Molina, Kerins, & Petry 2003) and other studies instead suggesting no difference between men and women in this regard (Erickson et al., 2005; Southwell et al., 2008). However, these studies rely on convenience and clinical samples, with few studies actually focused on older adults using large representative samples. Gendered interpretations surrounding the stigma of problem gambling have also been shown to be important barriers to seeking treatment. What is more, the types of stigma that discourage treatment seeking vary significantly between men and women (Baxter et al., 2016). Other researchers have argued that explanations of differences by sex are informed by stereotypes related to gender, and that gender itself in fact offers little

explanatory power when considered alongside other more relevant factors (LaPlante, Nelson, LaBrie, & Shaffer, 2006). The results of this study will provide detailed data relevant to the gambling patterns of older men and women that are difficult to obtain in those surveys which are more general in scope.

Concern has also been expressed over the use of different types of inducement to gamble targeting older adults, such as the provision of bus tours to casinos that agencies working with older adults may promote as a recreational opportunity (McCready et al., 2008). Casinos have been shown to use marketing and services targeted specifically at older adults. These services include free transportation from older adult living facilities, low cost food and alcohol, needle disposals for diabetes sufferers and defibrillators, and entertainment options directed towards older adults, including recording artists from the 1960s and 1970s (Bjelde, Chromy, & Pankow, 2008). These inducements are generally focused on reducing barriers to attending the casino and on offering secondary benefits that appeal to older adults. Nevertheless, little or no evidence is available concerning how many older adults are affected by these factors (e.g., participation in bus tours) or how they might affect gambling behaviours or the experience of gambling-related harm. Blaszczynski (2002) suggests that regulating these kind of targeted inducement strategies should be a part of future harm minimization strategies, and other researchers have proposed that such inducements should be prohibited entirely (Quinn, 2001). Understanding the impact of targeted inducement strategies and tactics aimed at populations who can be reasonably expected to be vulnerable to a greater degree of gambling-related harm is especially timely given the recent plans to expand gambling opportunities in Ontario (Rider, 2017).

The aims of this research were three-fold: (1) examine the gambling prevalence and gambling problems of older adults aged 55 and above in Ontario; (2) address the gap in the current literature by investigating the gender difference in problem gambling and gambling participation among older adults; and (3), determine the prevalence of particular types of gambling behaviour, participation in bus trips to casinos, and perceptions of the harms and benefits of gambling both within the overall sample and by sex.

## **Method**

### **Participants**

This study is a secondary analysis of a survey of gambling habits of older adults in Ontario funded by the provincial Ministry of Health and Long Term Care. This survey employed a Random Residential Household Telephone Survey of adults aged 55 and over with two samples: a general population sample and an oversample of regular gamblers. The initial sample used for the household screen was obtained through randomly selected landline telephone numbers under the assumption that residences with older men and women, as opposed to those with younger ones, are more inclined to maintain a single designated landline either on its own or in addition to cellular phone use. Households were first screened to identify those having

any adults aged 55 or older in residence. If senior men and women were found to live in the household, the interviewer then asked to speak with an eligible mature resident (55 years or older) to complete the brief Household Survey. Three hundred participants (150 male, 150 female) were selected from each of the six Health Regions in Ontario (East, West, Central East, Toronto, Central West, and North) for a total sample of 1,800. The response rate for the original sample was 52%.

To address research questions on problem gambling better, an oversample of regular gamblers was obtained through a secondary sampling strategy. For the purpose of oversampling, “regular gamblers” were defined as those persons who participated in gambling activities once a month or more, not including lottery play or charity draws. Participants for the oversample were obtained through randomly selected landline telephone numbers and screen for regular gambling as defined above in addition to the eligibility requirements for the initial sample. The oversample was not stratified by sex or region. An oversample of 387 regular gamblers was obtained, with uneven distribution across health region and sixths led to a final combined sample of 2,187 respondents. The survey was administered by Focal Research Consultants Limited on behalf of the investigators. The study received research ethics approval from the Centre for Addiction and Mental Health (CAMH).

## Measures

Gambling player status was derived from the frequency and type of play reported by participants. The first two categories were “Never gambled in lifetime” and “Gambled but not in past year.” “Casual gambler” referred to those participants who have gambled in the last year but on a less-than-monthly basis. Those participants who gambled once a month or more frequently were separated into the categories of “Regular lottery and/or charity draws only,” and “Regular gambler excluding draws” which indicates monthly gambling on forms of gambling outside of lottery or charity play. For types of gambling participated in during the previous year respondents were asked “during the past year, on average, how often did you purchase or play X?” for each type of gambling. Problem gambling was measured using the Problem Gambling Severity Index (PGSI) of the Canadian Problem Gambling Index (CPGI) (Ferris & Wynne, 2001), the instrument of choice for gambling research in Canada (Currie, Casey, & Hodgins, 2010; McCreedy & Adlaf, 2006). The number of participants classified with problem gambling as identified by the PGSI (8+) was less than 5 and too few to be reported here for reasons of confidentiality. As a result, comparisons are made combining the moderate (3–7) and severe problem gambling (8+) categories. To explore whether gambling was replacing other leisure activities respondents were asked to answer yes or no to the following question: “Since you started gambling, have you reduced your involvement in any other leisure or recreation activities?” Inducement to gamble is operationalized as the number of times in the past year that the participants visited a casino or gambling venue using a bus tour. Respondents were then separated into those participants who had and had not used bus tours in the previous year. Attitudes towards gambling were explored by asking whether respondents believed the harms

of gambling outweigh the benefits, and what their opinion was of the current availability of gambling in the province of Ontario.

### **Analyses**

Prior to analysis, the data were subject to cleaning and verification to ensure that the study dataset included valid and meaningful responses. All questionnaires were examined for evidence of random or other invalid responding, and those that showed evidence of invalid responding were not included in the final dataset. Data cleaning processes included scanning and analysis of outliers for survey items, corrections for obvious mistakes in inputs (e.g., 9132 corrected to 1932 for year of birth), and examination of the data for systematic response patterns for scales such as the PGS. Through this process, four participants' surveys were removed because of language barriers, two for inconsistencies in the PGSI scale, and three more were corrected for incorrectly entered birth year.

To ensure the sample would be representative of the general population, weighting procedures were used to take into account distribution of older adults across sex and health region in Ontario. Weighting by sex was calculated based on the proportion of men and women over the age of 55 in Ontario according to the 2011 Canadian census (Statistics Canada, 2012). For each region weights were calculated based on the percentage of older adults for each region who were over the age of 55 based on estimates from the 2011 census year (Statistics Canada, 2012). For the oversample, the same weighting procedures were performed as above to ensure representativeness across region and sex. Additionally, the oversample was weighted by player status to prevent the overrepresentation of regular gamblers in any analyses. Regular gamblers collected in the oversample were weighted to reflect the occurrence of regular gamblers collected in the base sample. Descriptive analyses to address the goals of the research were conducted, including presentation of percentages, as well as tests of association or differences between groups (e.g., chi square).

### **Results**

Table 1 describes the basic demographic information for the study sample. This table has been weighted for age, region of collection, and frequency of gambling participation (player status). This table shows that there was a fairly equal representation across age groups with those over the age of 75 making up the largest group. For marital status, the majority of the sample reported being married at 64.0% and being widowed was the second highest category at 17.9%. Relatively few respondents reported being single (7.3%) or being separated or divorced (10.8%). The majority of respondents reported being retired at 68.6% of the total sample while 24.6% reported being employed (full-time, part-time, or self-), and another 6.8% being homemakers, disabled, unemployed, or other. Household income showed a fairly even distribution with the highest category of earning over \$100,000 being the mode at 21.6%. It should be noted that a large portion of the sample did not provide an answer for the income variable (31.2%). The large majority of respondents reported living

Table 1  
*Sample Demographics*

Variable	<i>N</i>	Percent
Sex		
Male	1011	46.2%
Female	1176	53.8%
Age Group		
55–59 years	362	17.0%
60–64 years	423	19.8%
65–69 years	431	20.2%
70–74 years	376	17.6%
75 and over	540	25.3%
Missing	55	
Marital Status		
Single/never married	159	7.3%
Married/equivalent	1392	64.0%
Separated/divorced	234	10.8%
Widowed	388	17.9%
Missing	14	
Employment Status		
Employed: full-time, part-time, self	538	24.6%
Retired	1496	68.6%
Homemaker/disabled/unemployed/other	147	6.8%
Missing	6	
Income		
Less than \$20,000	158	10.5%
\$20,000–\$40,000	308	20.5%
\$40,001–\$60,000	320	21.2%
\$60,001–80,000	238	15.8%
\$80,001–\$100,000	155	10.3%
Over \$100,000	325	21.6%
Missing	683	
Living Situation		
Living with a family member or other caregiver	159	7.3%
Living in a seniors building, unit, or complex/assisted living unit	80	3.7%
Living independently in own home	1932	88.5%
Other	11	0.5%
Missing	5	
Community Type		
Urban (> 10 000)	1546	72.0%
Rural (< 10 000)	600	28.0%
Missing	41	

\* Reported percentages reflect the proportion of valid responses for each variable.

independently in their homes at 88.5% of the sample. Overall, 7.3% reported living with family or a caregiver and just 3.7% reported living in a senior building or assisted living unit. Most of the sample (72.0%) described the community they lived in as having a population of over 10,000.

Table 2  
*Comparison of player status and moderate-to-severe gambling problems across sex*

	Male		Female		Total Sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Player Status</b>						
Never gambled in lifetime	162	16.0%	166	14.1%	328	15.0%
Gambled, but not in past year	125	12.4%	209	17.8%	334	15.3%***
Casual gambler, past year	255	25.3%	307	26.1%	562	25.7%
Regular lottery and/or charity draws only, past year	311	30.8%	288	24.5%	599	27.4%***
Regular gambler excluding draws, past year	158	15.6%	206	17.5%	364	16.6%
Missing	0		0		0	
<b>PGSI Category</b>						
No risk or low risk	702	97.2%	782	98.4%	1485	98.1%
Moderate-to-severe problem gambling (PGSI ≥ 3)	22	2.2%	19	1.6%	41	1.9%
Missing	287		374		661	

\*\*\* $p < .001$ ; reflects significant differences between males and females based on chi-square tests. Percentages for PGSI categories reflect those who gambled in the 12 months prior to the survey.

In terms of gambling participation, Table 2 shows that the majority of the sample (69.7%) participated in some kind of gambling activity in the past year. The table indicates that more men than women had never gambled in their lifetime, while more women than men had gambled before but not in the last year. Casual gambling in the last year was fairly consistent across sex. Concerning regular gambling, more men regularly participated in lotteries and draws while more women participated regularly in other forms of gambling. Results of Pearson chi square analysis showed that women in the sample were over-represented among those who had gambled but not in the last year ( $\chi^2=12.29$ ,  $df=1$ ,  $p < 0.001$ ) and that men were over-represented among those who gambled regularly on lotteries and draws but no other forms of gambling ( $\chi^2=10.75$ ,  $df=1$ ,  $p < 0.001$ ). The prevalence of problem gambling was quite low in the sample. The large majority (1,376) (90.3%) of those who participated in gambling in the 12 months prior to the survey were classified as non-problem gamblers based on the PGSI (score of 0). 108 (7.1%) participants were classified with low-level gambling problems (PGSI: 1–2). The number of problem gamblers as identified by the PGSI (8+) was 0.1% of the population or 0.2% of those persons who gambled. Because fewer than 5 were actual severe problem gamblers, they were accordingly too few in number to be used in any comparisons. When the moderate gambling problems and problem gambling categories were combined they constituted 2.7% of those who participated in gambling in the last year. When considered as a proportion of the total sample this number was 1.8%. No difference was found in the proportion of men and women who were classified as being at moderate-to-severe risk of problem gambling ( $\chi^2=0.653$ ,  $df=1$ ,  $p=0.433$ ).

Table 3 describes the forms of gambling that respondents participated in during the 12 months prior to the survey and compares them across sixth table shows that overall,

Table 3  
*Comparison of participation in types of gambling in past year across sex*

Type of Gambling	Male		Female		Total
	<i>n</i>	%	<i>n</i>	%	%
Lottery draws	623	61.6%	612	52.0%	56.5%***
Instant lottery	196	19.4%	286	24.3%	22.0%**
Sport lotteries	20	2.0%	s	s	1.1%
Electronic bingo	S	s	11	0.9%	0.5%
Other bingo	25	2.4%	99	8.4%	5.6%***
Horse racing	54	5.4%	25	2.1%	3.6%***
Slot machines/EGMs	219	21.7%	273	23.2%	22.5%
Casino table games	47	4.7%	15	1.3%	2.9%***
Online poker	7	0.7%	s	s	0.5%
Other online gambling	S	s	s	s	0.2%
Card games	57	5.7%	54	4.6%	5.1%
Other sports bets & pools	38	3.7%	9	0.8%	2.1%***
Large charity draws	218	21.6%	241	20.5%	21.0%
Small charity draws	351	34.8%	359	30.5%	32.5%*
Other types of betting	6	0.6%	6	0.5%	0.6%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ ; reflects significant differences between males and females based on chi-square tests. <sup>S</sup>Cells with sample size fewer than 5 persons have been suppressed.

the most popular form of gambling was buying lottery draw tickets with 56.5% of the sample buying tickets in the last year. Both large and small charity draws were also popular at 21.0% and 32.5%, respectively. Among forms of gambling that were not lotteries or draws, slot machines were the most popular with 22.5%. Comparing men and women in this regard, this table shows that for several forms of gambling, the proportion of men and women participating in each form of gambling was significantly different. The only observed exception was large charity draws for which no significant difference was observed. A greater proportion of women had played bingo, instant lottery, and small charity draws. In contrast, a greater proportion of men participated in lottery, casino table games, horse racing and types of sports betting that are not sports lottery or online. Several of the less popular forms of gambling did not have cell counts high enough to make statistical comparisons. This finding included all forms of online gambling.

Analysis also compared the combined group of moderate and severe problem gamblers to the rest of the gamblers cross-tabulated against those who had and had not attended a gambling venue as part of an organized bus tour at least once in the past. Of those who were classified as non-problem or low problem gamblers, 30.0% had used bus tours in the past, while among those classified as having moderate-to-severe gambling problems, 44.6% had taken bus tours. Results showed that a significantly greater proportion of the sample that attended bus tours also screened for moderate gambling problems and problem gambling than for non-problem and low problem gambling ( $\chi^2=4.16$ ,  $df=1$ ,  $p=0.05$ ). It is also worth noting that a significantly greater

Table 4  
*Comparison of attitudes towards gambling across sex*

	Male		Female	
	<i>n</i>	%	<i>n</i>	%
Societal harm from gambling				
More harm than benefits	497	56.4%	613	65.2%***
Benefits are equal to harm	169	19.2%	148	15.7%
More benefits than harm	74	8.4%	47	5.0%
Don't know	132	16.0%	132	14.1%
Missing	139		236	
Gambling availability				
Gambling is too widely available	428	48.5%	471	50.1%
The current availability of gambling is fine	351	39.8%	347	36.9%
Gambling is not available enough	17	1.9%	17	1.8%
Don't know	86	9.8%	106	11.2%
Missing	129		235	

\*\*\* $p < 0.001$ ; reflects significant differences between males and females based on chi-square tests.  
 Reported percentages reflect the proportions of valid responses for each variable.

proportion of female participants had taken a bus tour in the past at 34.4% compared to men at 22.3% ( $=32.83$ ,  $df=1$ ,  $p < 0.001$ ). We also compared whether or not a respondent screened as being at moderate-to-severe risk of problem gambling by whether or not they believed they have reduced their other leisure activities since they have started gambling. The large majority of respondents have not reduced their participation in other forms of leisure at 98.1% resulting in cell sizes too low to perform the analysis reliably.

Table 4 compares differences in attitudes towards gambling between men and women. First, we see that the majority of both men and women stated that they believe that the harms of gambling to society outweigh the benefits. We also see that, relative to men, more women endorsed this belief with nearly two thirds stating that the harms were greater than the benefits. More men stated that they believe that the benefits outweigh the harms but this was still a minority of the sample at 8.4%. A two-sided test of independence showed a chi square statistic of 18.39 ( $df=2$ ) indicating significant variation between men and women at the  $p < 0.001$  level. In terms of the availability of gambling opportunities, roughly half of the sample of men and women stated that gambling is too widely available. In contrast to the previous question, no significant difference was observed between men and women in their responses to this question ( $\chi^2=3.92$ ,  $df=2$ ,  $p=0.418$ ).

## Discussion

The first objective of the study was to determine the prevalence of gambling and problem gambling in a representative sample of older adults in Ontario. In terms of gambling, our study identified a lifetime prevalence of 85.0%, a past-year participation

of 69.7% and a past-month participation of 44.0%. In their meta-analysis of gambling research of older adults, Tse, Hong, Wang, and Cunningham-Williams (2012) found gambling participation ranged from 28.7%–100% for lifetime, 26.6%–85.6% for past year and 25.5% for past month. In a sample of older adults in Ontario collected in 2001, Wiebe, Single, Falkowski-Ham, & Mun (2004) estimated a past-year participation of 73.5%. Further, a 2011 sample of Ontario adults estimated that 82.9% of adults had participated in gambling in the past year (Williams & Volberg, 2013). This finding shows that our detected prevalence of past-year gambling was lower than previous estimates among this age group, and lower than certain current estimates for adults of all age groups in Ontario. However, it should be noted that this rate is substantially higher than the lower bound of past-year participation rates as identified in the meta review of gambling in older adults conducted by Tse et al. (2012).

This study also provided an updated estimate of problem gambling among older adults in Ontario. Using the PGSI, the current study detected 0.1% of the total sample as problem gamblers (PGSI8+) and another 1.7% experienced moderate levels of gambling problems (PGSI=>3) with a combined total of 1.8% for the sample. Wiebe et al.'s (2004) aforementioned study of older Ontarians had similar findings of 0.1% and 2.0% respectively. Williams et al. (2012) reported a problem gambling rate of 1.23% compared to 1.65% in our current sample adjusted using their suggested standardization formula. Our findings show similar prevalence of problem gambling to past estimates of older adults and more current estimates of all adults. Thus, although gambling participation by older men and women may be declining in recent years, prevalence of problem gambling in this age range does not mirror these declines. Further, the results of this study show that older adults are experiencing relative stability of problem gambling prevalence while the general adult population shows decline. According to Williams et al. (2012), a general trend of decline in problem gambling prevalence has occurred starting in the late-1990s both in Canada and abroad. For example, comparing two representative Ontario surveys using the CPGI collected in 2001 (Wiebe et al., 2001), and 2010-2011 (Williams & Volberg, 2013) we see a reduction in those identified as moderate-to-severe problem gamblers from 3.8% to 2.6%. In contrast, combined moderate and problem gambling among older adults have moved from 2.1% (Wiebe et al., 2004) to 1.8% in the current study.

As found in other studies of older adults, lottery play was the most popular form of gambling followed by charity draws. Past-year slots or other EGMs play was reported by 22.5% of the total sample. This is similar to 23.0% slots or VLT participation identified by Wiebe et al. (2004) among older adults in their 2001 sample and slightly higher than more recent estimates of EGM/slots play in the total adult population (Williams & Volberg, 2013). Charting participation in slot machines and EGMs among older adults is important because they have been demonstrated over many research environments to be the forms of gambling most closely linked with problem gambling (Kerber, Black, & Buckwalter 2008; Rockloff & Hing, 2013; Southwell et al., 2008). Despite this large body of evidence, jurisdictions such as Ontario continue to introduce new forms of EGMs such as electronic break open

lottery tickets (TapTix) and electronic bingo (eBingo). Given the known harms associated with these forms of gambling, responsible gambling policy should be focused on limiting, rather than increasing their availability.

To determine the relationship between inducements to gamble and gambling-related harm, the current study examined the relationship between bus tour patronage and moderate-to-severe problem gambling. Our analysis showed a disproportionately high number of those subjects identified as moderate-to-severe problem gamblers had used coach bus tours to reach a casino or slots venue in the past. This finding supported a recent gambling venue intercept study of older adults (55+) that found past-year bus tour patronage was associated with higher odds of severe problem gambling after controlling for demographics factors and gambling behaviours (van der Maas et al., 2017). While the current results suggested that bus tour usage was associated with greater gambling-related harm, it may be the case that such tours offer a more cost effective and safer form of transportation to those that would visit a gambling venue by other means if they were not available. Future research should direct greater attention to the implications of inducements offered by gambling venues to older adults. Bjelde et al. (2008) argue that the targeting of older adults by casinos and other gambling venues may expose them to undue harm, and that such tactics should be further studied and addressed by gambling regulatory bodies. The association of gambling-related harm and bus tour patronage suggests that they may be an effective target for education programs on problem gambling and to direct problem gamblers to various treatment options.

A final major objective of the study was to detect differences in the experiences of gambling among older adults across sex. The gambling literature has noted several important distinctions in the gambling behaviours of men and women including differences in the prevalence of problem gambling, gambling expenditures, motivations to gamble, game preferences, and correlates with mental health and social environment. First, the current study finds no differences in the proportion of men and women who are identified as being at moderate-to-severe risk of problem gambling. The higher rate of problem gambling among men has been well-established across many research environments (Holdsworth et al., 2012). However, studies of older adults have found that gender is less informative in understanding problem gambling than previously assumed (Erickson et al., 2005; LaPlante et al., 2006; Southwell et al., 2008). One factor that might be at play here is the similar regular gambling participation found between men and women in this study while typically men are found to have higher participation (Holdsworth et al., 2012). The findings here show that the differences in problem gambling observed across sex in the general population may not in fact also hold true for older adults.

### **Limitations**

One limitation of the current study was that the inducements to gamble was only indicated by the use of casino bus tours. Unfortunately, the survey collected little information on inducements, and bus tour usage was the best representation of

inducements to gamble available. Another limitation of the current study is the reliance on self-report methods. As a result, associated forms of error may be involved, such as under-reporting of gambling problems. Despite this, numerous studies have shown methods such as those employed in the current study are sufficient in obtaining valid and reliable responses from participants (Ialomiteanu & Adlaf, 2012).

## Conclusions

The purpose of the study was to update our understanding, using representative survey data, of gambling and problem gambling among older adults. The findings of this study confirmed past research in that the prevalence of problem gambling and past-year gambling participation among older adults was lower than some previous estimates of older adults, and lower than current estimates of the general adult population. However, this study also expanded on our current knowledge of older adults by demonstrating that sex differences in gambling participation and moderate-to-severe problem gambling are less pronounced among older adults, and perhaps driven by more equal regular gambling participation in comparison to younger cohorts. These findings may provide important implications for how gambling is both regulated and marketed to older adults.

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Ethics approval: The project was reviewed and approved as REB 107/2014, March 18, 2015. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments including informed consent and confidentiality of all personal information.

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