



# Awareness and impact of casino responsible gambling/harm minimization measures among Canadian electronic gaming machine players

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# Disclaimer

The views expressed in this presentation are my own and do not represent the views of the Alberta Gambling Research Institute, the University of Lethbridge, my co-investigators or their institutions.

I have no conflicts of interest.



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- Further information on this study can be found on our website:  
<https://research.ucalgary.ca/alberta-gambling-research-institute/research/national-gambling-study>.



# Executive Summary

- Online panel survey of **Canadian casino electronic gaming machine (EGM) players'** (n=2808) awareness and impact of **RG/HM measures**.
- **High levels of awareness** for most measures, especially for at-risk and problem/pathological gamblers.
- However, these measures had **very little perceived impact** on their gambling expenditure or enjoyment.
- Multivariate analyses found **decreased perceived expenditure** from RG/HM measures were related to the **frequency of limit setting in the context of gambling play**.
- **Messages** targeted at **potential and actual harms of gambling**, and **limit setting frequency in the context of gambling play** are likely to change perceptions.



# Introduction

- Responsible Gambling/Harm Minimization (RG/HM) measures are industry and government policies and procedures designed to reduce the harmful effects of gambling (Christensen, 2019).
- Typically, gamblers are aware of these measures but have modest impact on gambling behaviour and enjoyment (Jackson et al., 2016).



# Introduction

- The academic literature examining RG/HM measures suggest they have varying degrees of effectiveness (Ladouceur, Shaffer, Blaszczynski, & Shaffer, 2017; Christensen, 2019).
- These measures are suggested to be most effective when combined, mandated, and policed (Christensen, 2019; Christensen et al., 2022; Delfabbro & King, 2021; Livingstone & Rintoul, 2020).
- However, the perceived effectiveness of RG/HM can be a non-linear relationship with problem gambling severity. For example, in one jurisdiction, the proposed new RG/HM measures were perceived to be more effective for reducing gambling expenditure by low-risk gamblers than non-problem or moderate/problem gamblers (Jackson et al., 2016).



# Introduction

- Currently, there are few studies examining the influence of RG/HM measures for categories of player-specific effects, and often these are restricted to gender and age or type of gambling activity (Turner et al., 2005; Gainsbury et al., 2018).
- This study examines **the predictors** of those who are **responsive to RG/HM measures**, and how these characteristics and related behaviours interact and influence these measures.



# Method

- The data were obtained from adult (18+) Canadian residents recruited from a pool of online panelists associated with the survey firm Leger360.
- Eligibility was restricted to people who completed an initial screening question indicating that they had gambled on one or more gambling activities once a month or more in the past year.
- In total, 10,199 participants were recruited from August 2018 to September 2018 (Hodgins et al., 2022). Participants completed a self-administered online questionnaire covering demographic questions and a range of topics related to gambling, substance use, and mental health.





# Method

- Measures:
  - Demographics
  - Gambler Category (PPGM)
  - RG/HM Measures\*
  - EGM Play
  - Limit Setting
  - Gambling Motivations
  - Gambling Fallacies



# Method

- The data were filtered so that only respondents that indicated they gambled on EGMs in a casino in or out of province were analyzed (n=2808).
- The analyses were non-parametric tests of independence (chi-square) for the RG/HM measures across PPGM categories, follow-up post hoc comparisons, odds ratios between gambler categories, one way Analysis of Variance Analyses, and Generalized Linear Models for categorical and continuous measures for RG/HM domain total scores.
- **Domain total scores** (i.e., awareness, expenditure, enjoyment for ANOVA and GLM analyses) were coded to reflect the desired effects of RG/HM: Awareness (yes =1, no=0), decreased expenditure (increase=-1, no impact =0, decrease=1), and enjoyment (increase =1, no impact =0, decrease=-1).



# Results

- Participants were primarily recreational gamblers (52.3%), were most often female (54.3%), aged between 55 and 64 years (21.9%), hold a bachelor's degree (20.9%), have no debt (30.1%), were married (63.1%), whose household income was \$40,000 - \$59,000 (18.4%), and were born in Canada (86.7%).
- Awareness was generally high for all gambler categories. Although the at-risk and problem/pathological groups were higher than the recreational category.
- Participants reported very low impact of RG/HM measures on gambling expenditure, and only a few significant differences between gambler categories.
- There was very low impact of RG/HM measures on enjoyment.

# Awareness

	PPGM recoded into three categories		
	Recreational Average	At Risk Average	Problem/Pathological Average
'Responsible gambling information terminals' and/or 'gambling information centres'	<b>0.55</b>	0.67	0.68
Limits on casino hours of operation	<b>0.57</b>	0.65	0.69
Prohibition of casino employees from gambling at the casino	<b>0.62</b>	0.68	0.69
Smoking bans	0.88	0.87	<b>0.76</b>
Prohibition of gambling while intoxicated	<b>0.42</b>	0.46	0.55
Ability to receive statements of gambling spending and frequency for reward/loyalty card members	<b>0.28</b>	0.39	0.44
Limits on cash payouts for winnings (i.e., receiving a cash voucher or cheque instead)	<b>0.43</b>	0.53	0.56
A limit on the maximum bet on electronic gambling machines	<b>0.50</b>	0.61	0.65
A limit on the maximum number of betting lines on slots or VLTs	<b>0.41</b>	0.53	0.61
Ability to put preset limits on time, money or frequency of slot or VLT play	<b>0.27</b>	0.39	0.51
Clocks on electronic gambling machines	<b>0.26</b>	0.40	0.55
Responsible gambling messaging on electronic gambling machines	<b>0.62</b>	0.69	0.69
Casino self-exclusion (ability to ban yourself from the casino)	<b>0.58</b>	0.65	0.66
Other	<b>0.01</b>	0.02	0.03

## Notes:

Bold indicates significant chi-square test of independence, the lowest proportion across categories,

Number of significant differences: at risk vs. problem pathological (n=5),  
recreational vs. at risk (n=10), recreational vs. problem/pathological (n=14)

# Expenditure

	PPGM recoded into three categories		
	Recreation	At Risk	Problem/Pathological
	Average	Average	Average
'Responsible gambling information terminals' and/or 'gambling information centres'	0.07	0.10	0.01
Limits on casino hours of operation	0.09	0.13	0.03
Prohibition of casino employees from gambling at the casino	0.05	0.05	-0.01
Smoking bans	0.04	0.04	0.04
Prohibition of gambling while intoxicated	0.08	0.08	-0.02
Ability to receive statements of gambling spending and frequency for reward/loyalty card members	0.06	0.03	0.01
Limits on cash payouts for winnings (i.e., receiving a cash voucher or cheque instead)	0.08	0.07	0.01
A limit on the maximum bet on electronic gambling machines	0.11	0.17	0.07
A limit on the maximum number of betting lines on slots or VLTs	0.13	0.15	0.01
Ability to put preset limits on time, money or frequency of slot or VLT play	<sup>a</sup> 0.14	0.14	<sup>a</sup> <b>-0.02</b>
Clocks on electronic gambling machines	<sup>a</sup> 0.15	<sup>b</sup> 0.18	<sup>a,b</sup> <b>0.00</b>
Responsible gambling messaging on electronic gambling machines	0.07	0.11	0.01
Casino self-exclusion (ability to ban yourself from the casino)	0.06	0.09	0.01
Other*	0.06	0.35	-0.06

## Notes:

Bold indicates significant chi-square test of independence, the lowest average score across

Superscript indicates significant differences between pairs,  $p < 0.0025$ .

\*The fewer responses to this question likely resulted in the non-significant results (n=89).

Number of significant differences: recreational vs. at risk (n=0),

recreational vs. problem/pathological (n=2), at risk vs. problem/pathological (n=1)

# Enjoyment

PPGM recoded into three categories

	Recreation Average	At Risk Average	Problem/Pathological Average
'Responsible gambling information terminals' and/or 'gambling information centres'	0.00	0.02	0.03
Limits on casino hours of operation	-0.02	0.00	0.05
Prohibition of casino employees from gambling at the casino	0.00	0.02	0.07
Smoking bans	0.13	0.11	0.05
Prohibition of gambling while intoxicated	0.03	0.09	0.09
Ability to receive statements of gambling spending and frequency for reward/loyalty card members	0.03	0.08	0.12
Limits on cash payouts for winnings (i.e., receiving a cash voucher or cheque instead)	-0.04	-0.03	-0.02
A limit on the maximum bet on electronic gambling machines	0.01	0.01	0.01
A limit on the maximum number of betting lines on slots or VLTs	-0.01	-0.01	0.03
Ability to put preset limits on time, money or frequency of slot or VLT play	-0.01	0.02	0.06
Clocks on electronic gambling machines	-0.01	0.00	0.06
Responsible gambling messaging on electronic gambling machines	<sup>a</sup> <b>0.00</b>	0.00	<sup>a</sup> 0.09
Casino self-exclusion (ability to ban yourself from the casino)	0.00	0.01	0.07
Other*	0.00	-0.15	0.22

## Notes:

Average = average score

Bold indicates significant chi-square test of independence, the lowest average score across

Superscript indicates significant differences between pairs,  $p < 0.0025$ .

\*The fewer responses to this question likely resulted in the non-significant results (n=89).

Number of significant differences: recreational vs. problem/pathological (n=1),

recreational vs. at risk (n=0), at risk vs. problem/pathological (n=0)

# Odds ratios

	Awareness			Expenditure			Enjoyment		
	AR vs R	PP vs R	N	AR vs R	PP vs R	N	AR vs R	PP vs R	N
'Responsible gambling information terminals' and/or 'gambling information centres'	1.684	1.745	2803	1.180	0.710	1702	1.136	1.189	1702
Limits on casino hours of operation	1.405	1.704	2803	1.239	0.821	1727	1.098	1.500	1727
Prohibition of casino employees from gambling at the casino	1.292	1.360	2803	0.986	0.666	1831	1.144	1.676	1831
Smoking bans	0.897	0.433	2803	1.017	1.065	2375	0.914	0.752	2375
Prohibition of gambling while intoxicated	1.149	1.630	2803	1.031	0.652	1298	1.291	1.384	1298
Ability to receive statements of gambling spending and frequency for reward/loyalty card members	1.635	1.980	2803	0.903	0.823	970	1.205	1.561	970
Limits on cash payouts for winnings (i.e., receiving a cash voucher or cheque instead)	1.541	1.692	2803	0.985	0.746	1357	1.015	1.022	1357
A limit on the maximum bet on electronic gambling machines	1.581	1.892	2803	1.362	0.894	1583	1.007	1.019	1583
A limit on the maximum number of betting lines on slots or VLTs	1.579	2.252	2803	1.099	0.647	1371	1.016	1.226	1371
Ability to put preset limits on time, money or frequency of slot or VLT play	1.687	2.791	2803	1.046	0.592	1003	1.098	1.343	1003
Clocks on electronic gambling machines	1.882	3.515	2803	1.171	0.605	1017	1.046	1.369	1017
Responsible gambling messaging on electronic gambling machines	1.425	1.385	2803	1.226	0.718	1827	0.968	1.732	1827
Casino self-exclusion (ability to ban yourself from the casino)	1.390	1.457	2803	1.165	0.763	1727	1.048	1.656	1727
Other□	3.038	4.056	2803	2.486	0.747	89	0.689	1.905	89

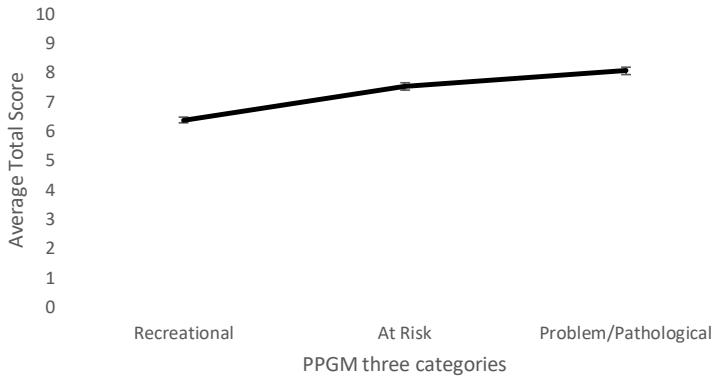
Note:

R= Recreational, AR = At Risk, PP=Problem/Pathological

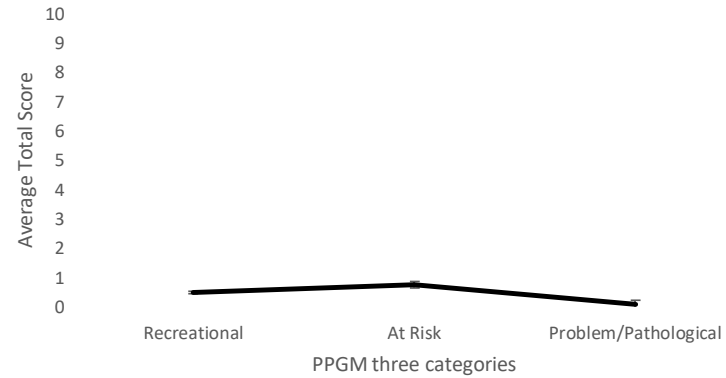
N = Number in analysis

# ANOVA Total Score Plots

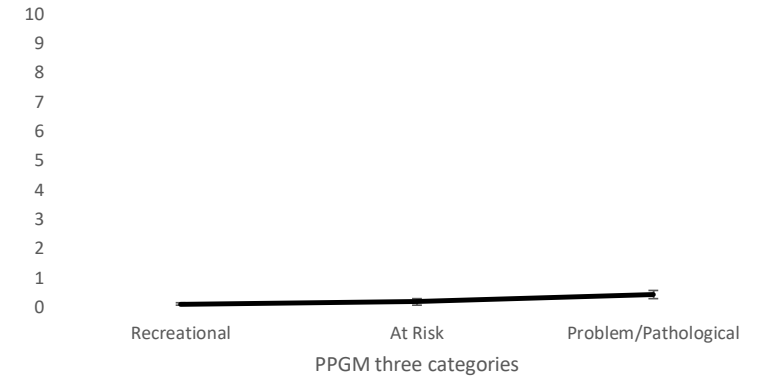
Awareness



Expenditure



Enjoyment





# GLM Main Effects

Main Effects		Awareness			Expenditure			Enjoyment		
		WCS	df	Sig.	WCS	df	Sig.	WCS	df	Sig.
(Intercept)		525.568	1	<b>0.000</b>	0.654	1	0.419	5.972	1	0.015
Problem Gambling Severity PPGM		7.498	2	0.024	14.741	2	<b>&lt;.001</b>	5.915	2	0.052
Demographics	Please indicate your sex	13.568	1	<b>&lt;.001</b>	0.569	1	0.451	0.798	1	0.372
	How old are you?	22.414	6	<b>0.001</b>	27.816	6	<b>&lt;.001</b>	19.585	6	0.003
	What is your highest level of education?	3.257	9	0.953	7.633	9	0.571	6.902	9	0.647
	What is your best estimate of your household debt?	9.532	8	0.299	12.461	8	0.132	8.058	8	0.428
	What is your current marital status?	6.581	4	0.160	3.689	4	0.450	1.665	4	0.797
	What is your best estimate of your household income?	8.033	7	0.330	21.249	7	0.003	24.616	7	<b>&lt;.001</b>
	Were you born in Canada?	0.206	1	0.650	1.886	1	0.170	0.699	1	0.403
EGM Play	EGM spend per month	1.535	1	0.215	0.010	1	0.921	0.113	1	0.737
	EGM hours played per month	3.384	1	0.066	2.542	1	0.111	0.174	1	0.677
	EGM Frequency	13.392	5	0.020	2.072	5	0.839	6.676	5	0.246
	Net Monthly EGM Win(-) Loss (+) per Annual Household Income	0.170	1	0.680	0.024	1	0.876	0.007	1	0.932
Limit Setting	How often did you limit the amount of time playing?	8.449	4	0.076	7.303	4	0.121	16.351	4	0.003
	How often did you limit how often you play to control your gambling?	16.336	4	0.003	2.846	4	0.584	3.685	4	0.450
	How often did you set a predetermined spending limit?	9.151	4	0.057	5.284	4	0.259	3.936	4	0.415
Gambling Motivations	What is your primary reason that you gamble?	24.832	9	0.003	28.678	9	<b>&lt;.001</b>	16.088	9	0.065
	How important to you is gambling as a leisure or recreational activity?	17.305	3	<b>&lt;.001</b>	2.018	3	0.569	1.058	3	0.787
	How important is money to you?	2.725	3	0.436	11.443	3	0.010	10.010	3	0.018
Gambling Fallacies	Gambling Fallacies	0.043	1	0.836	4.794	1	0.029	7.644	1	0.006

# GLM 2way Interactions

## 2-way Interactions

		Awareness			Expenditure			Enjoyment		
		WCS	df	Sig.	WCS	df	Sig.	WCS	df	Sig.
Problem Gambling Severity	PPGM * Preset spending Limit	16.399	8	0.037	13.170	8	0.106	8.024	8	0.431
	PPGM * Limit time playing	2.836	8	0.944	6.162	8	0.629	7.199	8	0.515
	PPGM * Limit Frequency	12.119	8	0.146	16.183	8	0.040	3.848	8	0.871
	PPGM * EGM Frequency	15.912	10	0.102	16.392	10	0.089	11.394	10	0.328
	PPGM * Net Monthly EGM Win(-) Loss (+) per Annual Household Income	0.579	2	0.749	0.265	2	0.876	5.178	2	0.075
	PPGM * EGM Spend per month	6.522	2	0.038	0.546	2	0.761	2.002	2	0.368
	PPGM * EGM Hours	12.164	2	<b>0.002</b>	3.551	2	0.169	3.861	2	0.145
Preset Spending limit	Preset Spending limit * Limit Time playing	39.796	16	<b>&lt;.001</b>	15.137	16	0.515	19.064	16	0.265
	Preset Spending limit * Limit Frequency	36.054	16	0.003	26.013	16	0.054	21.228	16	0.170
	Preset Spending limit * EGM Frequency	35.358	20	0.018	31.566	20	0.048	30.635	20	0.060
	Preset Spending limit * Net Monthly EGM Win(-) Loss (+) per Annual Household Income	7.601	4	0.107	3.080	4	0.544	2.709	4	0.608
	Preset Spending limit * EGM Spend per month	11.145	4	0.025	5.315	4	0.257	3.147	4	0.534
	Preset Spending limit * EGM Hours	5.442	4	0.245	9.026	4	0.060	3.724	4	0.445
Limit Time playing	Limit Time playing * Limit Frequency	8.954	16	0.915	28.737	16	0.026	14.767	16	0.542
	Limit Time playing * EGM Frequency	15.147	20	0.768	20.374	20	0.435	37.712	20	0.010
	Limit Time playing * Net Monthly EGM Win(-) Loss (+) per Annual Household Income	11.379	4	0.023	3.709	4	0.447	2.276	4	0.685
	Limit Time playing * EGM Spend per month	5.909	4	0.206	9.030	4	0.060	5.076	4	0.280
	Limit Time playing * EGM Hours	3.804	4	0.433	14.911	4	0.005	9.724	4	0.045
Limit Frequency	Limit Frequency * EGM Frequency	13.572	20	0.852	34.206	20	0.025	37.634	20	0.010
	Limit Frequency * Net Monthly EGM Win(-) Loss (+) per Annual Household Income	7.803	4	0.099	17.722	4	<b>0.001</b>	6.698	4	0.153
	Limit Frequency * EGM Spend per month	7.820	4	0.098	25.793	4	<b>&lt;.001</b>	20.547	4	<b>&lt;.001</b>
	Limit Frequency * EGM Hours	1.483	4	0.830	16.694	4	<b>0.002</b>	8.841	4	0.065
EGM Frequency	EGM Frequency * Net Monthly EGM Win(-) Loss (+) per Annual Household Income	2.046	5	0.843	18.371	5	0.003	17.118	5	0.004
	EGM Frequency * EGM Spend per month	2.529	5	0.772	19.019	5	<b>0.002</b>	12.459	5	0.029
	EGM Frequency * EGM Hours	3.301	5	0.654	15.209	5	0.010	11.172	5	0.048
Win Income	Net Monthly EGM Win(-) Loss (+) per Annual Household Income * EGM Spend	2.427	1	0.119	1.923	1	0.166	3.093	1	0.079
	Net Monthly EGM Win(-) Loss (+) per Annual Household Income * EGM Hours	1.445	1	0.229	0.639	1	0.424	0.000	1	0.982
EGM Spend	EGM Spend * EGM Hours	0.861	1	0.353	0.002	1	0.964	0.270	1	0.603



# Discussion

- The individual **chi-square analyses** of the RG/HM measures mirror previous research that shows moderate to high awareness of RG/HM policies (Christensen et al., 2022), and minimal impact on gambling expenditure and enjoyment (Jackson et al., 2016).
- The main chi-square results for awareness of the individual RG/HM measures were that the recreational category had statistically significant lower awareness scores.
- There were only three significant main effects chi-square for expenditure and enjoyment: the recreational category had statistically significant higher scores than the problem/pathological category for the ability to pre-set limits and clocks, and that the recreational category had a lower enjoyment score than the problem/pathological category for responsible gambling messaging.



# Discussion

- The GLM main effects multivariate analyzes are the first to show that **multiple variables**: demographic, gambling play, and gambling motivation variables had **statistically significant effects** on total RG/HM awareness, gambling expenditure, and enjoyment.
- Specifically, the main effects results (i.e., the influence of single variables) showed that **awareness of RG/HM measures** were higher for males, and higher for middle aged vs older gamblers, and higher if gambling was somewhat important vs. gambling was not an important leisure activity.
- **Gambling expenditure decreases\*** were higher for at-risk than problem/pathological gamblers, higher for younger gamblers, and for those for don't have a primary reason to gamble.
- **Gambling enjoyment increases** was higher for lower incomes compared to those earning the highest incomes.



# Discussion

- The GLM multivariate main effects results suggest two opposing aspects; 1) those often at-risk for problem gambling or those more vulnerable to harms (men, younger gamblers, those with lower incomes; Statistics Canada, 2022), and 2) those who have ambiguous attitudes towards gambling (who consider gambling a somewhat important leisure activity, who don't have a primary reason to gamble, and are possibly experiencing sub-clinical gambling harms), *appear more sensitive to RG/HM measures*.
- These results suggest **two types of targets for educational campaigns**; 1) those who are vulnerable for problem gambling (but not experiencing harms) and 2) targeting those who are experiencing subclinical gambling harms (and probably not wanting more).



# Discussion

- The GLM multivariate interaction analyses show that *limit setting frequencies was a contributing factor* in most of the significant interaction results.
- Specifically for **Expenditure**, limit setting frequency and win/loss per annual income, EGM spend, and EGM hours significantly reduced gambling expenditure.
- Further, preset spending limits and limit time playing increased awareness, while always setting limits and EGM spend predicted greater enjoyment.
- Again, these results suggest **two foci for RG/HM interventions and messaging:** 1) **limit setting frequencies** (Delfabbro & King, 2021), and 2) **EGM play** (el-Guebaly et al., 2015).



# Public Health Implications

- In summary, the GLM main effects results suggest that traditional RG/HM policies focusing on recognizing the signs of problem gambling might be missing two important groups:
  - those that have **some risk characteristics** for problem gambling but are **not experiencing problems** (and wish this to continue),
  - and those who are **beginning to experience problems** (but are not problem gamblers).
- These groups seem most responsive to RG/HM measures.
- Public health messages to them could lead to more population level ‘responsible gambling’.



# Public Health Implications

- **Targeting** those with an interest in **avoiding possible or worsening problems** seems an obvious approach, and likely more successful for reducing individual and population level gambling harms than focusing on those uninterested in the harms of gambling.
- Also, these results imply those experiencing **problem gambling probably need more direct interventions** (e.g., self-exclusion, counselling) or mandatory mechanisms (e.g., loss limits), to change their behaviour.





# Public Health Implications

- Further, in summary, the GLM interaction results suggest that RG/HM measures that **emphasize regular limiting setting frequencies** in concert with **EGM play** appear effective for reducing gambling expenditure.
- These can be population level public health messages and suggestions for those looking for explicit strategies.
- For example, “Set a limit for your income, time, and spend each session to reduce your losses and make gambling more enjoyable”.

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Thank You



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