

Sports wagering and problem gambling among Casino patrons - Evidence from Southern Switzerland

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Emiliano Soldini, senior lecturer and researcher

Salvatore Maione, Researcher with PhD

Competence Centre for Healthcare Practices and Policies (CPPS)

Department of Business Economics, Health and Social Care (DEASS)

University of Applied Sciences and Arts of Southern Switzerland (SUPSI)



EXCESSIVE GAMBLING: PROMOTING AND PROTECTING HEALTH IN A DIGITALISED WORLD

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Declaration of Financial Interests or Relationships

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Background and aim (1)

- Gambling is a riskless leisure activity for most people. [D. A. Korn, 1999; Abbott et al., 2004]
- However, a small percentage of the population (0.1-3.4% in Europe, 0.2-2.2% in Switzerland; 1% in Southern Switzerland) develops problems related to this activity. [Molo Bettellini et al., 2000; Bondolfi et al., 2000, 2008; Brodbeck et al., 2009; Lisi & Soldini, 2013; Calado & Griffiths, 2016]
- Problem gambling is not evenly distributed among the population, with some social groups being more at risk (e.g.: persons with substance addiction or mental health issues). [Potenza et al., 2001; Volberg & Wray, 2007]
- Among these groups, casino patrons are particularly at risk, with problem gambling rates being much higher than those of the general population (16% or more). [Fong et al., 2011; Lisi & Soldini, 2013; To & Huang, 2023]

Background and aim (2)

- Together with online gambling, in the last decades sports wagering has become increasingly popular with both the development of digital technologies and the continuous exposure to advertising. [Brevers et al., 2022; Valenciano-Mendoza et al., 2023; Winters & Derevensky, 2019]
- Sports wagering is nowadays the most popular online gambling form in Europe. [Valenciano-Mendoza et al., 2023]
- This trend is concerning because sports wagering is both particularly attractive for adolescents and young adults and related to rather high problem gambling rates. [Brevers et al., 2022; Valenciano-Mendoza et al., 2023; Winters & Derevensky, 2019]
- Within this context, little is known about sports wagering among land-based casino patrons. Is such activity popular? Is it related to higher problem gambling rates within this social group particularly at risk?
- This study aimed at assessing the prevalence of sports wagering and its relations with gambler's characteristics and problem gambling risk among land-based casino patrons.

Methods – Survey and questionnaire details

- **Data collection method:** face-to-face survey administered to 601 land-based patrons evenly distributed among the three casinos located in Southern Switzerland (Locarno, Lugano and Mendrisio) between January 25th and June 24th, 2023.
- **Place of administration:** exit of the three casinos.
- **Sections of the structured questionnaire:**
 - 1) Sociodemographic (e.g.: sex, age) and behavioral (e.g. smoking habits, drug use) characteristics
 - 2) Gambling frequency and behavior in the Casino
 - 3) Gambling frequency and behavior outside casinos
 - 4) Gambling behavior during the COVID-19 pandemic
 - 5) Gambling-related monthly spending and maximum daily amounts won and loss
 - 6) Problem gambling assessment
- **Problem gambling assessment instrument:** South Oaks Gambling Screen (SOGS). [Lesieur & Blume, 1987]

Methods – Statistical analysis (1)

- Bivariate statistics were used to assess the relations between sports wagering and sociodemographic and behavioral characteristics, gambling behavior and problem gambling.
- Logistic regression models were used to assess the relation between sports wagering and problem gambling while accounting for other relevant sociodemographic and behavioral factors.
- In this setting, the problem gambling assessment instrument (SOGS) deserves particular attention.
- Indeed, despite being considered a valid and reliable instrument for problem gambling screening, usual cutoffs (0-2 = no problem, 3-4 = problem gambling, 5 or more = probable pathological gambling) may provide inaccurate estimate of problem gambling in samples outside the clinical and community settings. [de Oliveira et al., 2009; Stinchfield, 2002; Tang et al., 2010]

Methods – Statistical analysis (2)

- To tackle the SOGS cutoff scores issue, the bivariate analysis was adjusted by considering the raw SOGS score together with the usual SOGS cutoff scores.
- Moreover, logistic regression analysis was adjusted by estimating several models based on dependent variables defined using increasing levels of difference between the SOGS scores, useful to provide a more comprehensive and sensitive assessment.

SOGS scores M1	SOGS scores M2	SOGS scores M3	SOGS scores M4	SOGS scores M5
0 vs 1 or more	0 vs 2 or more	0 vs 3 or more	0 vs 4 or more	0 vs 5 or more
-	0-1 vs 2 or more	0-1 vs 3 or more	0-1 vs 4 or more	0-1 vs 5 or more
-	-	0-2 vs 3 or more	0-2 vs 4 or more	0-2 vs 5 or more

Results – Sports wagering prevalence

- Full data for the analyses were available for 581 casino patrons out of 601 (97%).
- Sports wagering prevalence during the 12 months preceding the survey was 20.8%

Sports wagering during the last 12 months	n (%)
No	460 (79.2%)
Less than once a week	62 (10.7%)
At least once a week	59 (10.1%)

Results – Associations between sports wagering frequency and sociodemographic and behavioral characteristics

Sociodemographic and behavioral characteristics	Frequency of sports wagering			χ^2 test result
	No (n=460)	Less than once a week (n=62)	At least once a week (n=59)	
Sex				
Woman	38.9%	11.3%	8.5%	$\chi^2(2) = 36.61^{***}$
Man	61.1%	88.7%	91.5%	
Age in years				
18-30	49.1%	75.8%	66.1%	$\chi^2(4) = 27.74^{***}$
31-50	23.1%	16.1%	27.1%	
51 or more	27.8%	8.1%	6.8%	
Nationality				
Italian	53.5%	41.9%	55.9%	$\chi^2(4) = 6.91$
Swiss or double	40.9%	46.8%	42.4%	
Other	5.6%	11.3%	1.7%	
Smoking habits				
Non-smoker	43.9%	48.4%	27.1%	$\chi^2(4) = 6.97$
Past smoker	12.2%	11.3%	15.3%	
Current regular smoker	43.9%	40.3%	57.6%	
Alcohol consumption				
Never or exceptionally	31.7%	21.0%	17.0%	$\chi^2(4) = 9.50^*$
Less than once a week	16.5%	21.0%	15.3%	
At least once a week	51.8%	58.0%	67.8%	
Drugs use				
No	91.7%	90.3%	74.6%	$\chi^2(2) = 16.90^{***}$
Yes	8.3%	9.7%	25.4%	

Results – Associations between sports wagering frequency and gambling behavior

Gambling behavior	Frequency of sports wagering			χ^2 test result
	No (n=460)	Less than once a week (n=62)	At least once a week (n=59)	
Online gambling				
Yes	4.4%	54.8%	83.1%	$\chi^2(2) = 287.62^{***}$
No	95.6%	45.2%	16.9%	
Gambling alone				
Yes	30.1%	17.7%	42.4%	$\chi^2(2) = 8.69^*$
No	69.1%	82.3%	57.6%	
Frequency of land-based casino gambling				
Less than once a month	47.6%	48.4%	13.5%	$\chi^2(4) = 34.41^{***}$
1-3 times a month	30.2%	43.5%	45.8%	
At least once a week	22.2%	8.1%	40.7%	
Length of casino visits				
Up to 1 hour	48.7%	62.9%	23.7%	$\chi^2(4) = 28.11^{***}$
1-2 hours	33.3%	27.4%	35.6%	
More than 2 hours	18.0%	9.7%	40.7%	
Monthly spending on gambling				
Up to 100 Swiss francs	61.3%	64.5%	23.7%	$\chi^2(4) = 40.63^{***}$
101-500 Swiss francs	26.1%	24.2%	37.3%	
More than 500 Swiss francs	12.6%	11.3%	39.0%	

Results – Associations between sports wagering and problem gambling

SOGS scores	Frequency of sports wagering			Statistical test result
	No (n=460)	Less than once a week (n=62)	At least once a week (n=59)	
Raw score				
0	52.6%	32.3%	11.9%	Kruskal-Wallis test $\chi^2(2) = 70.61^{***}$
1	26.3%	24.2%	25.4%	
2	8.3%	24.2%	25.4%	
3	5.7%	6.5%	13.5%	
4	2.4%	3.2%	1.7%	
5	1.1%	4.8%	1.7%	
6	1.5%	3.2%	5.1%	
7	1.3%	0.0%	3.4%	
8	0.2%	0.0%	8.5%	
9	0.2%	1.6%	3.4%	
10	0.2%	0.0%	0.0%	
12	0.2%	0.0%	0.0%	
SOGS usual cutoffs				
0-2	87.2%	80.6%	62.7%	Chi-squared test $\chi^2(2) = 29.63^{***}$
3-4	8.0%	9.7%	15.3%	
5 or more	4.8%	9.7%	22.0%	

*** p<0.001, ** p<0.01, * p<0.05

Results – Multivariable analysis of the association between sports wagering and problem gambling (1)

Logistic models with a SOGS score of 0 as reference group

Sports wagering	Dependent variables based on SOGS scores				
	0 vs 1 or more	0 vs 2 or more	0 vs 3 or more	0 vs 4 or more	0 vs 5 or more
Engagement (ref. cat.: No)					
Yes	2.57** (0.83)	4.04** (1.62)	3.68* (2.00)	13.23** (10.65)	20.76** (18.87)
Frequency (ref. cat.: Not engaged)					
Less than once a week	2.42* (0.85)	4.07** (1.73)	3.75* (2.10)	14.16*** (10.32)	18.10** (15.12)
At least once a week	3.09* (1.60)	3.95* (2.51)	3.53 (3.06)	10.11 (16.30)	38.69* (66.04)
Area under the ROC curve	0.81	0.88	0.91	0.94	0.94
Number of observations	581	430	362	324	310

Confounders included: sex, age, alcohol use, drug use, gambling alone, online gambling, frequency of land-based casino gambling, length of casino visits, monthly spending on gambling.

The coefficients reported are Odds ratios with robust standard errors in parenthesis, *** p<0.001, ** p<0.01, * p<0.05

Results – Multivariable analysis of the association between sports wagering and problem gambling (2)

Logistic models with a SOGS score of 0-1 as reference group

Sports wagering	Dependent variables based on SOGS scores			
	0-1 vs 2 or more	0-1 vs 3 or more	0-1 vs 4 or more	0-1 vs 5 or more
Engagement (ref. cat.: No)				
Yes	3.08** (1.16)	2.58 (1.43)	5.94* (4.14)	9.15** (7.03)
Frequency (ref. cat.: Not engaged)				
Less than once a week	3.29** (1.30)	2.90 (1.67)	7.44** (4.80)	9.52** (6.80)
At least once a week	2.73* (1.35)	2.21 (1.51)	3.81 (4.07)	8.43 (10.21)
Area under the ROC curve	0.81	0.85	0.90	0.91
Number of observations	581	513	475	461

Confounders included: sex, age, alcohol use, drug use, gambling alone, online gambling, frequency of land-based casino gambling, length of casino visits, monthly spending on gambling.

The coefficients reported are Odds ratios with robust standard errors in parenthesis, *** p<0.001, ** p<0.01, * p<0.05

Results – Multivariable analysis of the association between sports wagering and problem gambling (3)

Logistic models with a SOGS score of 0-2 as reference group

Sports wagering	Dependent variables based on SOGS scores		
	0-2 vs 3 or more	0-2 vs 4 or more	0-2 vs 5 or more
Engagement (ref. cat.: No)			
Yes	1.93 (0.99)	4.40* (2.87)	6.33** (4.48)
Frequency (ref. cat.: Not engaged)			
Less than once a week	2.17 (1.17)	5.33** (3.33)	6.49** (4.52)
At least once a week	1.67 (1.04)	3.10 (2.99)	6.07 (6.44)
Area under the ROC curve	0.82	0.88	0.90
Number of observations	581	543	529

Confounders included: sex, age, alcohol use, drug use, gambling alone, online gambling, frequency of land-based casino gambling, length of casino visits, monthly spending on gambling.

The coefficients reported are Odds ratios with robust standard errors in parenthesis, *** p<0.001, ** p<0.01, * p<0.05

Results – Summary of the main findings

- Sports wagering prevalence among casino patrons was **20.8%**, evenly distributed between non-regular and regular gamblers → engagement (regardless of the frequency) was related to **male sex, young age and online gambling activities** (the latter particularly for regular sports wagerers).
- Casino patrons regularly wagering on sports were characterized by a **much riskier profile** compared to non and non-regular sports wagerers, since they were more likely to:
 - **consume alcohol regularly and use drugs,**
 - **gamble alone, visit the casino frequently and stay a long time, and spend high monthly sums,**
 - **have gambling problems.**
- The logistic regression analyses confirmed that **sports wagering is associated with a higher probability of problem gambling** while accounting for other relevant confounders.
 - the lack of a significant association between regular sports wagering and gambling problems is most probably related to the riskier profile of regular sports wagerers, with the corresponding **confounders “masking” the relation.**

Conclusions and limitations

- In Southern Switzerland, one out of five casino patrons were engaged in sports wagering (one out of ten regularly).
- Sports wagering was associated with a higher problem gambling risk.
- Gathering information on sports wagering among casino patrons could prove useful for problem gambling risk stratification and monitoring in land-based casinos of Southern Switzerland.
- Limitations of the study:
 - context specific results → need to repeat the study in other settings to assess the external validity,
 - imbalanced dependent variables (much more “0” than “1”) in some models, which may influence the robustness of the estimates → need to repeat the estimates in more balanced (and possibly larger) samples to confirm the significance and magnitude of the coefficients.



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