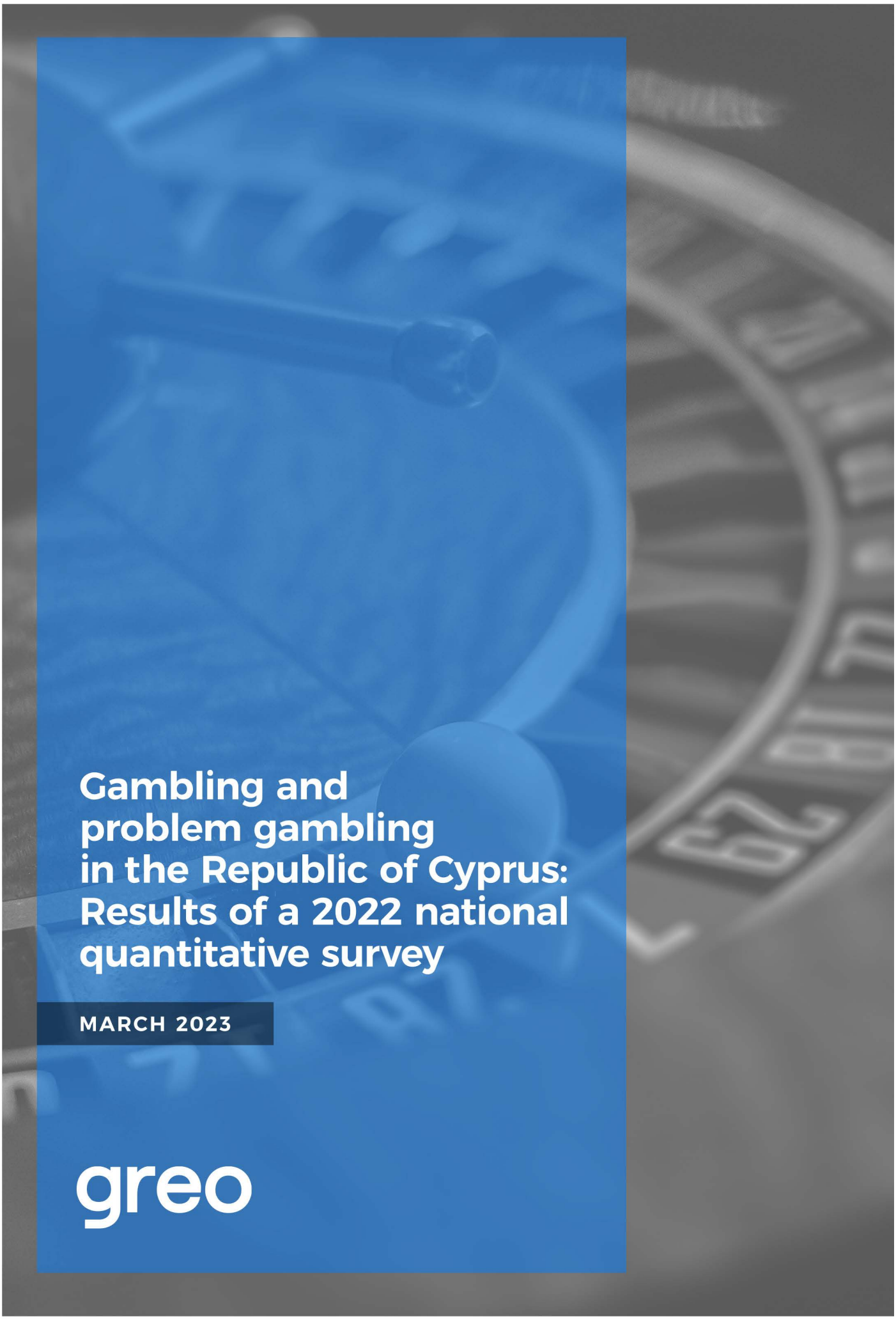


Gambling and problem gambling in the Republic of Cyprus: Results of a 2022 national quantitative survey

MARCH 2023

greo

Gambling and problem gambling in the Republic of Cyprus: Results of a 2022 national quantitative survey

Prepared by Greo Evidence Insights and Insights Market Research (IMR) Ltd
for the National Betting Authority Cyprus.

March 2023

Authorship and Acknowledgements

Greo Evidence Insights

Carling M. Baxter, PhD (Research Analyst)

Matthew M. Young, PhD (Chief Research Officer)

Rachel Volberg, PhD (Research Professor at the University of Massachusetts Amherst School of Public Health and Health Sciences & Greo Evidence Insights Research Associate)

Insights Market Research (IMR)

Christina Kokkalou (Research Director)

Other

The consortium would like to thank Youssef Allami, PhD (Psychologist & President of ALLY Addiction) for work updating the systematic search of the problem gambling prevalence literature (see Appendix E).

Table of Contents

TABLE OF CONTENTS 4
LIST OF TABLES 5
LIST OF FIGURES 6
ACRONYMS, ABBREVIATIONS, AND DEFINITIONS 7
EXECUTIVE SUMMARY 8
- Background 8
- Methods 8
- Results 8
  - Gambling Participation 8
  - Problem and At-risk Gambling 9
- Discussion 9

BACKGROUND 10
METHODS 11
- Systematic Search Methods 11
- Survey Methods 11
  - Questionnaire Development 11
  - Sampling Strategy and Data Collection 13
  - Data Cleaning and Preparation 14
  - Sample Characteristics 14
  - Analytical Strategy 16

RESULTS AND DISCUSSION 17
- Systematic Search 17
- Survey Results 18
  - Gambling Participation 18
  - Gambling Expenditure 28
  - Problem and At-risk Gambling 29

SUMMARY AND IMPLICATIONS 43
- Comparison to Cyprus Prevalence Studies 43
- Comparison to International Prevalence Studies 43
- Implications 44
  - Protecting Society from Harms Related to Gambling 44
  - Preventing Gambling Related Harm 45
- Summary and Conclusions 45

APPENDIX A: QUESTIONNAIRE 46
APPENDIX B: TELEPHONE INTERVIEWING PROCEDURE 60
APPENDIX C: PROCEDURES FOR CREATING WEIGHTS 61
APPENDIX D: UNWEIGHTED AND WEIGHTED SAMPLE DEMOGRAPHIC CHARACTERISTICS COMPARED TO THE POPULATION OF CYPRUS 63
APPENDIX E: COMPLETION RATES BY QUESTIONNAIRE ITEM 65
APPENDIX F: A SYSTEMATIC REVIEW OF PROBLEM GAMBLING PREVALENCE STUDIES SINCE 2019 70
A SYSTEMATIC SEARCH OF PROBLEM GAMBLING PREVALENCE STUDIES CONDUCTED SINCE 2019 71
REFERENCES 76

List of Tables

Table 1: Demographic characteristics of survey respondents 14
Table 2: International gambling prevalence studies using the PGSI published between January 1st, 2019 and March 6th, 2021. 17
Table 3: Types of gambling asked about in the questionnaire. 18
Table 4: Past year gambling participation by demographic variables. 19
Table 5. Past year gambling based on demographic groups from comparable international studies 21
Table 6: Past year gambling participation by gambling type. 22
Table 7: Most popular gambling types among comparable international studies. 23
Table 8: Past year participation by gambling format (i.e., online vs. in-person) and gambling type. 24
Table 9: Online gambling across comparable international studies. 25
Table 10: Gambling frequency by gambling type. 26
Table 11: Number of different gambling types by level of gambling involvement. 27
Table 12: Reasons for gambling among occasional and regular gamblers. 28
Table 13: Self-reported net expenditure by gambling type (N=1 630) 28
Table 14: Problem gambling severity classification of respondents based traditional scoring of the problem gambling severity index (PGSI) 30
Table 15: Problem and at-risk gambling (%) across comparable international studies. 30
Table 16: Problem gambling risk classification of respondents based on alternate scoring of the problem gambling severity index (PGSI). 31
Table 17: Problem gambling risk classification by demographic variables. 31
Table 18: Problem gambling risk classification by type of gambling 34
Table 19: Reasons for gambling by problem gambling risk classification 35
Table 20: Substance use by problem gambling risk classification. 37
Table 21: Substance use across comparable international studies. 38
Table 22: Physical and mental health by problem gambling risk classification 39
Table 23: Relationship between mental health and problem gambling assessed by comparable international prevalence studies 40
Table 24: Responses to other questionnaire items by problem gambling risk classification. 41

List of Figures

Figure 1: Gambling participation by age. 20
Figure 2: Gambling participation by sex. 21
Figure 3: Gambling participation by gambling type. 23
Figure 4: Gambling format (online vs. in-person) across gambling types. 25
Figure 5: Gambling frequency by gambling type. 27
Figure 6: Problem gambling risk classification by age. 33
Figure 7: Problem gambling risk classification by sex. 33
Figure 8: Gambling format and type by problem gambling risk classification. 35
Figure 9: Substance use by problem gambling risk classification. 37
Figure 10: Mental health by problem gambling risk classification. 39

Acronyms, Abbreviations, and Definitions

CATI	Computer Assisted Telephone Interview
CI	Confidence Interval
CPGI	Canadian Problem Gambling Index
DSM	Diagnostic and Statistical Manual of Mental Disorders
IMR	Insights Market Research
EGM	Electronic Gaming Machine
Gambling format	The way the individual has engaged in gambling (i.e., online or in-person)
Gambling type	The gambling activity (e.g., lottery, sports betting, etc.)
NBA	National Betting Authority Cyprus.
PG	Problem gambling
PGSI	Problem Gambling Severity Index
PY	Past Year
The Authority	National Betting Authority Cyprus.
The Consortium	Greo Evidence Insights and Insights Market Research
The Strategy	Safer Gambling Strategy for 2022–2025: The road to a public health approach in Cyprus

Executive Summary

BACKGROUND

In 2022, the Cyprus National Betting Authority commissioned Greo Evidence Insights and Insights Market Research to conduct a prevalence study to assess rates of gambling participation and problem gambling to enhance understanding of gambling harms in the Republic of Cyprus and serve as a foundation from which to build a public health approach to addressing gambling related harm.

METHODS

Questionnaire responses (*N*=2 950) were collected via telephone interviews using CATI (Computer-Assisted Telephone Interviewing) between November 11, 2022, and December 30, 2022. Data were collected using stratified multi-stage sampling based on age, sex, district, and area of residence (urban vs. rural) and weighted based on age, sex, ethnicity, and education.

The questionnaire was modelled on those used by other international gambling prevalence studies and included a series of "health and recreation" questions that assess risky behaviours and other risk factors commonly co-occurring with gambling problems; a standardized set of gambling participation questions; a standard, internationally recognized, problem gambling assessment instrument (the Problem Gambling Severity Index); a question about gambling motivations; and a series of demographic questions.

RESULTS

Gambling Participation

In 2022, just over half of respondents (55%) reported participating in one or more gambling activities in the past year, with the greatest proportion of respondents engaging in lottery gambling, specifically lottery games (e.g., Joker, Lotto, Proto) and scratch cards. This is comparable to other countries that have conducted recent prevalence studies.

Among the 55% of Cypriots who gambled, they were most likely to be male and aged 18-34. Further, among Cypriots who gambled in the last year, more than 7 in 10 reported gambling at least once per month. The most popular form of gambling was lottery gambling with 49.5% of Cypriots indicating they played the lottery in the past year. This was followed by sports betting (10.2%) and then bingo (7.4%). Among respondents who engaged in sports betting, significantly more reported gambling online than in-person only.

Problem and At-risk Gambling

In 2022, approximately 1.5% of Cypriots met the criteria for problem gambling (PG), scoring 8 or more on the PGSI. This percentage of people meeting the criteria for problem gambling is within the range of PG rates observed internationally in prevalence surveys using the PGSI conducted since 2019.

To reliably examine the association between problematic gambling and other correlates assessed in the current study we examined a group of respondents scoring 5+ of the PSGI which we call high-risk gamblers.

In total, 2.6% of the sample met the criteria for high-risk gambling. Among high-risk gamblers:

- those aged 18 to 34 years old made up a greater proportion (41.3 %) than among the total sample (23.5%). Conversely, those aged 65 and older made up a smaller proportion (6.7%) than the total sample (26.6%);
- 92% were male;
- more than 6 in 10 (61.7%) reported past year online gambling. In contrast, among non-problem gamblers less than 1 in 10 (7.9%) reported gambling online in the past year.
- sports betting or betting on other events was the most popular type of gambling (75.3%) followed by the lottery (72.0%) and fruit/slot machines (33.3%). In contrast, the most popular types of gambling among non-problem gamblers were lottery (92.3%) followed by bingo (12.6%) and sports betting (10.5%).
- more than 1 in 20 indicated their main reason for gambling was to escape or distract oneself (5.3%).

Compared to non-problem gamblers, high-risk gamblers were more likely to report smoking and binge drinking, being less happy, and were more likely to report serious mental health issues – with almost 3 in 100 indicating they had seriously contemplated suicide in the past year.

DISCUSSION

This is the first gambling participation and problem gambling prevalence study conducted in the Republic of Cyprus that permits international comparison. Therefore, trends are impossible to ascertain from the present study. However, the information included in this report provides the Authority and other stakeholders interested in gambling a baseline that can be used to conduct future assessments and from which to assist in assessing the efficacy of The Authority's Safer Gambling Strategy for 2022–2025.

Background

The National Betting Authority (The Authority or NBA) was established in 2012 as a legal public entity, currently governed by the Betting Law 37(I)/2019 which came into effect in March 2019 (formerly governed by Betting Law 106(I)/2012). The Authority is responsible for the regulation, supervision, and monitoring of betting activity in the Republic of Cyprus. As part of its responsibility for overseeing betting and gambling in Cyprus, the Authority conducts research on issues related to betting and gambling. In 2018, the NBA released a report describing the results of the first national quantitative survey on the prevalence, behaviour, and characteristics of people who gamble in Cyprus. Using survey responses from 3,000 people in 2017 and 2018, the report described rates of gambling participation and rates of problem gambling (PG) in Cyprus, and the factors that influenced these rates. The findings have informed the Authority's strategies to address gambling and problem gambling (PG) across the country.

In 2022, the Authority commissioned Greo Evidence Insights (Greo) and Insights Market Research (IMR) (hereafter referred to collectively as "the Consortium") to conduct a subsequent prevalence study aligning with international best practices to assess rates of gambling participation and problem gambling to enhance the Authority's understanding of gambling harms in the Republic of Cyprus and serve as a foundation from which to build a public health approach to addressing gambling related harm.

The research described in the following report assesses gambling participation and problem and at-risk gambling by demographics, gambling type, gambling format, gambling frequency by type, and reasons for gambling, to compare to other international prevalence studies, and to make recommendations.

Methods

SYSTEMATIC SEARCH METHODS

One aim of the present study was to compare results with those from recent international prevalence studies. To identify recent international prevalence studies that employ similar methods and instruments, we updated aspects of the 2021 meta-analysis of problem gambling prevalence and risk factors conducted by Allami et al., (2021). Specifically, a systematic search was conducted on March 6th, 2023 using PubMED and PsycINFO. Results were limited to studies published between January 1st, 2019 and March 6th, 2021 (see Appendix F for details).

SURVEY METHODS

Questionnaire Development

The questionnaire was modelled on other gambling prevalence studies conducted internationally. These include Volberg et al.'s (2017) *Gambling and Problem Gambling in Massachusetts: Results of a Baseline Population Survey*, NatCen's 2010 British Gambling Prevalence Study (Wardle et al., 2011), and the National Betting Authority's 2017 National Quantitative Survey on the Prevalence, Behavior, and Characteristics of Gamblers (Kokkalou et al., 2018). Once an initial draft questionnaire was constructed, members of the Consortium met with the Authority to review the research objectives and ensure the questionnaire adequately assessed all questions of interest to the Authority. Next the questionnaire was translated from English to Greek. To ensure translation did not inadvertently alter the meaning of any questionnaire items, the Greek questionnaire was then back-translated from Greek to English to assess for similarity to the original English. The only term that was of concern was the Greek term for "gambling" which is used in the English version of the Problem Gambling Severity Index (PGSI: Ferris & Wynne, 2001). The PGSI was used in this study to determine the prevalence of problem gambling in Cyprus, and thus, it was important that the language used accurately captured respondents' gambling behaviour.

In Greek, there are a few different terms that are used to refer to gambling. Following consultation with the NBA the term "τυχερά παιχνίδια" was used throughout the questionnaire.

Once the questionnaire content was finalized, it was pilot tested with 102 respondents. This was done to ensure: (1) the number of refusals to answer questions was low; (2) no questions were confusing or vague; (3) there were adequate response options for each question; and (4) the skip patterns were implemented properly. The pilot test was also used to determine whether the interview was an appropriate length. The Consortium reviewed the results of the pilot test and made minor adjustments to improve the clarity and length of the questionnaire. The final questionnaire is included as Appendix A.

The final questionnaire included: a series of "health and recreation" questions that assessed risky behaviours and other risk factors commonly co-occurring with gambling problems; a standardized set of gambling participation questions; a standard internationally recognized problem gambling assessment instrument; a question about gambling motivations; and a series of demographic questions.

Part 1: Health questions (16 items)

This part of the questionnaire was used to assess risky behaviour related to gambling and other associated risk factors. These questions (see Appendix A, Part 1) were used to begin the questionnaire. As such they reinforced the notion this was a "health and recreation" questionnaire. A second purpose of these questions was to assess the extent to which the individual engaged in any behaviours or had any comorbidities commonly associated with problem gambling (e.g., mental health problems). The section included general questions about the respondents' preferred recreational activities, their physical and mental health status, use of tobacco and alcohol, experience of stress, and happiness during childhood.

Part 2: Gambling participation (33 items)

Respondents were asked about the frequency of their participation and their expenditures on different types of gambling (see Appendix A, Part 2). Wood and Williams (2007) found the most reliable method to assess past year gambling participation was to ask about frequency of past year engagement with specific forms of gambling available within the jurisdiction being surveyed, then to ask about expenditure on that form of gambling in a typical month. This has become the international standard for asking about spending on gambling. Members from the Consortium consulted with the Authority to determine the forms of gambling that were included in this questionnaire, with special attention paid to whether the types of gambling were engaged in online, in person, or both, when relevant.

Part 3: Standard measure of problem gambling (24 items)

Respondents who indicated they gambled in the past year in Part 2 were administered items from the Canadian Problem Gambling Index (CPGI). The full, 31-item, CPGI is organized into three discrete sections. The first section includes 4 items that assess gambling involvement. For brevity, we included two of these questions (about gambling frequency and monthly expenditure) for each of the 13 gambling types assessed in this study and excluded two questions (about duration of time spent gambling and largest amount wagered). These questions were included in Part 2 above. This is followed by a series of 9 items used to assess problem gambling severity. These items are referred to as the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). This sub-scale permits the classification of respondents into four categories: non-problem gamblers, low-risk gamblers, moderate-risk gamblers, and problem gamblers. Next, the CPGI contains three unscored items that assess the extent to which the person lies about their gambling, spends more than intended gambling, and whether they have difficulty stopping gambling. The final section of the CPGI includes 15 items assessing other correlates of PG such as the extent to which respondents have cognitive distortions about gambling or have attempted suicide as a result their gambling. These questions are intended to assist researchers in the examination of possible correlates of PG. We initially included all CPGI items in the questionnaire, except the two gambling involvement questions about the duration of gambling or largest amount wagered. However, after pilot testing we were forced to reduce the length of the interview. In the end, we included 24 out of 31 items from the CPGI . This included 2 items assessing gambling involvement (Part 2), 9 items from the PGSI, and 13 items from the remainder of the index. We further included two questions about participants' gambling history. The items are presented in Appendix A, Part 3.

Part 4: Gambling motivations (1 item)

Respondents were asked a single question about their gambling motivations (see Appendix A, Part 4).

Part 5: Demographics (12 items)

The questionnaire concluded with 12 demographic questions. These questions were drawn from Volberg et al., (2017) and modified after reviewing demographic questions included in Kokkalou et al. (2018, p. 190). The questions ask about sex, age, ethnicity, marital status, number of children in the household, highest level of education, employment status, household income, household debt, whether respondents were born in Cyprus, whether they live in urban or rural areas, and the district they live in. (See Appendix A, Part 5)

Sampling Strategy and Data Collection

Questionnaire responses were collected via telephone interviews using CATI (Computer-Assisted Telephone Interviewing) between November 11, 2022 and December 30, 2022. Potential interviewees were selected via a process of randomly selecting numbers from telephone directories. Overall, the research team called 11 378 telephone numbers to attempt to conduct interviews. Of these calls, 8 045 telephone calls were answered and 4 919 candidates declined to participate in the study. Among those that agreed to participate, 176 did not complete the interview. The result was 2 950 completed interviews, and a final sample size of 2 949 as one respondent was excluded for not meeting the minimum age criterion. More detail regarding the telephone interviewing procedure is available in Appendix B.

Representativeness

To accurately estimate the prevalence of gambling and problem gambling, it is important that survey data are representative of the population on several key variables: age, sex, ethnicity, and education. To ensure the sample was representative data were collected using stratified multi-stage sampling based on age, sex, district, and area of residence (urban vs. rural) and weighted based on age, sex, ethnicity, and education level.

Weights were constructed using the survey data frame and the relevant census data from the 2011 Cyprus population census provided by the Cyprus Statistical Service CYSTAT. The weights were then adjusted using raking based on cross-classified pairs of the variables age, sex, ethnicity, and education, and were trimmed so that the minimum weight was the average weight divided by 8 and the maximum weight was the average weight multiplied by 8. A more detailed description of the weighting procedures employed is presented in Appendix C.

Though the most recent census in Cyprus was conducted in 2021, results from that census had not been made available when the data were analysed. Included in Appendix D is a table including the unweighted and weighted sample demographic characteristics compared to the population of Cyprus.

Data Cleaning and Preparation

The data were carefully reviewed and cleaned prior to analysis. As mentioned in the *Sampling Strategy and Data Collection* section, the data cleaning process identified one respondent who did not meet the minimum age criterion of 18 years old (i.e., the minimum legal gambling age in Cyprus). This respondent's data were removed from the analysis.

Overall, question completion rates for each item in the questionnaire were very high. All but two questions[1] had completion rates above 90%, and an average completion rate of 98.5% across all questions (see Appendix E). For this reason, no imputation was conducted.

Data cleaning revealed eight questions with between one and five missing responses. Further data cleaning revealed these were likely data entry errors and skip pattern issues, and they have been taken into consideration in the analyses.[2] See Appendix E for detailed information on missing data by questionnaire item.

Thus, the final dataset cleaned and prepared for analysis contained 2 949 complete records.

Sample Characteristics

Sample characteristics, including weighted sample size and proportion of sample by age group, sex, district, area of residence, ethnicity, education, household income, employment status, and marital status of the survey respondents are presented in Table 1.

Table 1: Demographic characteristics of survey respondents

Characteristic		N	%	95% CI
Age	18-34 years old	694	23.5	(22.0, 25.1)
	35-49 years old	786	26.6	(25.1, 28.3)
	50-64 years old	684	23.2	(21.7, 24.7)
	65+ years old	786	26.6	(25.1, 28.3)
	Total	2 949	100.0	
Sex	Male	1 379	46.7	(45.0, 48.6)
	Female	1 570	53.3	(51.4, 55.0)
	Total	2 949	100.0	
District	Nicosia	1 188	40.3	(38.5, 42.1)
	Limassol	808	27.4	(25.8, 29.0)
	Larnaca	519	17.6	(16.3, 19.0)
	Ammochostos/Famagusta	181	6.1	(5.3, 7.0)
	Paphos	253	8.6	(7.6, 9.6)
	Total	2 949	100.0	
Area of Residence	Urban	1 912	64.8	(63.1, 66.5)
	Rural	1 037	35.2	(33.5, 36.9)
	Total	2 949	100.0	

1 The first question asked about annual household income (n=2 949) and had a completion rate of 89.3%. Low completion rates are typical for questions regarding personal finance. The second question was meant to be asked of respondents who indicated engaging in "other" types of gambling (n=10) and asked how often these respondents engaged in these "other" types of gambling. This question had a completion rate of 70.0% as responses were not recorded for three of the 10 respondents due to a skip issue or data entry error.

2 Given the interviewers separately recorded "do not know" and "refused to answer" responses, we assume that these missing responses are due to minor errors in the skip pattern of the survey or data entry errors. Given, however, that the completion rate for all questions is extremely high (see Appendix E), we did not perform imputations on these missing responses, and simply excluded missing data from the analyses. In all cases, non-responses (due to missing data or "do not know" and "refused to answer" responses) were removed from the analysis (e.g., reported percentages were calculated with the number of recorded responses as the denominator).

Characteristic		N	%	95% CI
Ethnicity	Greek Cypriot	2 306	78.2	(76.7, 79.7)
	Other Cypriot	24	0.8	(0.5, 1.2)
	Non-Cypriot citizen	598	20.3	(18.9, 21.8)
	Other/Not Stated	21	0.7	(0.5, 1.1)
	Total	2 949	100.0	
Education	Up to primary education	600	20.4	(18.9, 21.8)
	Lower secondary education	268	9.1	(8.1, 10.2)
	Upper secondary; Post-secondary; Tertiary non-university	1 368	46.4	(44.6, 48.2)
	Undergraduate education (university)	473	16.0	(14.7, 17.4)
	Postgraduate education (masters, PhD)	174	5.9	(5.1, 6.8)
	Do not know/Not stated	65	2.2	(1.7, 2.8)
	Total	2 949	100.0	
Household income[(i)]	Less than €15,000	968	37.7	(35.8, 39.6)
	€15,000 - €19,500	544	21.2	(19.6, 22.8)
	€19,501 - €24,000	371	14.4	(13.1, 15.8)
	€24,001 - €28,000	245	9.5	(8.4, 10.7)
	€28,001 - €36,300	212	8.3	(7.2, 9.4)
	€36,301 - €50,000	134	5.2	(4.4, 6.1)
	€50,001 - €60,000	50	1.9	(1.5, 2.5)
	€60,001 - €70,000	25	1.0	(0.6, 1.4)
	€70,000 or more	20	0.8	(0.5, 1.2)
	Total	2 568	100.0	
Employment status	Full-time employed	1 408	48.6	(46.8, 50.4)
	Part-time employed	158	5.4	(4.7, 6.3)
	Unemployed	183	6.3	(5.5, 7.2)
	School student	3	0.1	(0.0, 0.3)
	University student	118	4.1	(3.4, 4.8)
	Homemaker	154	5.3	(4.5, 6.2)
	Military service	11	0.4	(0.2, 0.7)
	Income recipient	10	0.4	(0.2, 0.6)
	Unable to work due to illness/disability	42	1.5	(1.1, 1.9)
	Retired	802	27.7	(26.1, 29.3)
	Other	9	0.3	(0.2, 0.6)
	Total	2 897	100.0	
Marital status	Married	1 692	57.4	(55.6, 59.2)
	Living with your partner	207	7.0	(6.1, 8.0)
	Separated, but still legally married	67	2.3	(1.8, 2.9)
	Divorced	283	9.6	(8.6, 10.7)
	Widowed	179	6.1	(5.3, 7.0)
	Never been married	522	17.7	16.4, 19.1)
	Total	2 949	100.0	

(i) Note: 12.9% (weighted) of respondents did not respond to the household income question. Given the higher-than-normal non-response on household income, analyses including this variable should be interpreted with caution.

Analytical Strategy

In describing gambling participation and problem gambling rates in Cyprus, we followed the analytical strategies used in other prevalence surveys, (e.g., Kokkalou et al., 2018; Volberg et al., 2017; Wardle et al., 2011) and report percentages and 95% confidence intervals (95% CIs) and mean and standard error (SE) for means (averages). When comparing percentages of respondents falling in different categories (e.g., occasional vs. regular gamblers), we report *p* values derived from Pearson Chi Square statistical tests and assess pairwise significance by examining overlapping 95% confidence intervals. To test for statistically significant differences in means we use t-tests (where equal variances are not assumed).

All statistics are calculated based on the weighted data. Therefore, all reported *N*s and percentages, unless otherwise stated, are weighted.

When calculating percentages and 95% confidence intervals (or other statistics) for questions where there are non-responses or missing data (i.e., respondents declined to answer the question, or the question was missed due to a skip pattern issue or data entry error), non-responses were removed from the data (i.e., percentages are calculated out of the total weighted *N* who responded to the question). When there is a relatively high proportion of non-responses for a question (i.e., >10%), this is noted in the notes below the tables where it is relevant (see Appendix E for completion rates of all questions).

Results and Discussion

SYSTEMATIC SEARCH

Ten studies met the inclusion criteria of the systematic search. Of these 10 studies, eight used the PGSI and five were directly comparable to the current results. All eight studies using the PGSI are summarised in Table 2. The first five studies listed in Table 2 are most directly comparable to the current study, because they do not rely on online panels, which can result in different prevalence estimates than interview studies. These five studies are compared to the current study where relevant.

Table 2: International gambling prevalence studies using the PGSI published between January 1st, 2019 and March 6th, 2021.

Year	Jurisdiction / Citation	Age	Sample size	Past year gambling	Past year PG Prevalence		Notes
					PGSI 8+	PGSI 3-7	
2018-19	Victoria (Australia) / (Rockloff et al., 2020)	18+	10 638	69.0%	0.7%	2.4%	General population. Interviews. All gambling types
2019	New South Wales (Australia) / (Browne et al., 2020)	18+	10 012	53.3%	1.0%	2.8%	General population. Interview. All gambling types
2019	France / (Costes et al., 2020)[ii]	18-85	10 352	45.6%	1.6%	4.4%	General population. Interviews. All gambling types.
2019-20	Republic of Ireland / (Mongan et al., 2022)	15+	5 672	49.0%	0.3%	0.9%	General population. Interviews. All gambling types.
2019-20	Australia / (Hing et al., 2021)	18+	15 000	56.9%	1.2%	3.1%	General population. interviews. Internet gambling.
2020	Denmark / (Håkansson, 2021)[i]	18+	2 012	54.6%	5.5%	3.2%	General population. Online panel. All gambling types.
2020	British Columbia (Canada) / (Ipsos & Strategic Science, 2020)[1]	19+	4 079	85.0%	7.0%	8.0%	General population. Online panel. All gambling types.
2021	Sweden / (Claesdotter-Knutsson & Håkansson, 2021)[i]	16+	1 501	70.9%	3.7%	9.1%	PY gamblers. Online panel. All gambling types.

[i] PG rates are likely elevated as a result of the sampling strategy. These studies employed an online panel of pre-recruited participants, and such methods are known to be associated with greater gambling and PG rates.

[ii] Note, the study from France reports past year PG prevalence percentages out of all gamblers, rather than out of the entire sample. As such, these estimates are higher than those reported by the other studies, which report problem gambling risk and prevalence as a percentage out of the entire sample

SURVEY RESULTS

Gambling Participation

Respondents were asked how often they engaged in 13 different types of gambling (see Table 3) in the past 12 months on a 7-point scale ranging from 1 ("not at all") to 7 ("4 or more times per week"). They were also asked how much they spend on each type of gambling in a typical month, and, where relevant, whether they engaged in that type of gambling in person, online, or both (i.e., format).

Table 3: Types of gambling asked about in the questionnaire.

National Lottery tickets	Sports betting or betting on other events (in person, online, or both)
Scratch cards	Virtual sports
Lottery games such as Joker, Lotto, or Proto	Betting with a betting exchange (in person, online, or both)
Instant lottery games (e.g., Kino, Super 3, or Extra 5)	Casino games (e.g., blackjack, poker) (in person, online, or both)
Bingo	Fruit/slot machines (in person, online, or both)
Horse racing	Other gambling activities (in person, online, or both)
Private betting with friends, family, or colleagues (e.g., betting on card games, sports matches, etc.) (in person, online, or both)	

Overall, more than half (55.3%) of those surveyed reported past year gambling. However, this differed by population demographics.

Demographics

Table 4 presents information on overall past year gambling participation among different demographic groups. This table describes how past year gambling participation varied by age, sex, education level, household income, employment status, and marital status.

AGE. Adults aged 18 to 34 years old were the most likely age group to report having gambled in the past year – with almost two-thirds (64.9%) reporting past year gambling. In contrast, adults aged 65+ years were least likely to report past year gambling (43.7%) (see Figure 1).

SEX. More males (64.5%) reported past year gambling than females (47.2%) (see Figure 2).

EDUCATION. Respondents with lower education levels (i.e., up to primary), reported lower rates of past year gambling participation (42.3%) than those with more education (i.e., greater education than upper secondary, >58%).

HOUSEHOLD INCOME. Households reporting greater income were more likely to report past year gambling. Among the groups assessed, the most likely group to report past year gambling was those earning a household income of €50 001 or more (62.8%).

EMPLOYMENT STATUS. In terms of employment status, homemakers reported the lowest rates of past year gambling (40.9%) followed by those who were retired (45.4%). In contrast, students reported the highest rates of past year gambling (61.7%), followed by those who were employed (61.3%) and those who were unemployed (59.6%).

MARITAL STATUS. Respondents who had never been married report the highest rates of past year gambling (64.2%). Those who were widowed reported the lowest rate (45.8%).

OTHER DEMOGRAPHICS. Past year participation did not vary significantly based on ethnicity, district, or area of residence (i.e., urban vs. rural). Finally, rates of past year gambling did not significantly differ between those living in urban and rural settings.

Table 4: Past year gambling participation based on demographic variables.

Subgroup		*N* (full sample)	Past year participation	
			%	95% CI
Age**				
	18–34 years old	693	64.9	(61.3, 68.4)
	35–49 years old	786	58.8	(55.3, 62.2)
	50–64 years old	684	54.8	(51.1, 58.5)
	65+ years old	785	43.7	(40.3, 47.2)
	Total	2 948	55.3	(53.5, 57.1)
Sex**				
	Male	1 379	64.5	(61.9, 67.0)
	Female	1 570	47.2	(44.7, 49.7)
	Total	2 949	55.3	(53.5, 57.1)
Ethnicity[(i)]				
	Greek Cypriot	2307	55.8	(53.8, 57.8)
	Other Cypriot	24	66.7	(46.8, 82.8)
	Non-Cypriot Citizen	598	51.7	(47.7, 55.7)
	Total	2 929	55.1	(53.3, 56.9)
District				
	Nicosia	1 188	54.8	(52.0, 57.6)
	Limassol	807	56.5	(53.1 59.9)
	Larnaca	519	57.4	(53.1, 61.6)
	Ammochostos/ Famagusta	180	46.1	(38.9, 53.4)
	Paphos	253	55.7	(49.6, 61.8)
	Total	2 947	55.3	(53.5, 57.1)
Area of Residence				
	Urban	1 912	55.1	(52.8, 57.3)
	Rural	1 037	55.6	(52.6, 58.6)
	Total	2 949	55.3	(53.5, 57.1)
Education[(ii)]**				
	Up to primary education	600	42.3	(38.4, 46.3)
	Lower secondary education	269	49.4	(43.5, 55.4)
	Upper secondary; Post-secondary; Tertiary non-university	1 368	61.1	(58.5, 63.7)
	Undergraduate education (university)	473	59.2	(54.7, 63.6)
	Postgraduate education (masters, PhD)	174	58.0	(50.6, 65.2)
	Total	2 884	55.6	(53.8, 57.4)

Subgroup		*N* (full sample)	Past year participation	
			%	95% CI
Household income[iii]*				
	Less than €15 000	969	52.1	(49.0, 55.3)
	€15 001 - €19 500	545	56.3	(52.1, 60.5)
	€19 501 - €24 000	371	58.8	(53.7, 63.7)
	€24 001 - €28 000	245	57.1	(50.9, 63.2)
	€28 001 - €50 000	346	60.1	(54.9, 65.2)
	€50 001 or more	94	62.8	(52.7, 72.0)
	Total	2 571	55.9	(54.0, 57.8)
Employment status**				
	Employed[iv]	1 586	61.3	(58.9, 63.7)
	Unemployed or income recipient	193	59.6	(52.6, 66.3)
	Student	120	61.7	(52.8, 70.0)
	Homemaker	154	40.9	(33.4, 48.8)
	Unable to work due to illness/disability	43	46.5	(32.2, 61.2)
	Retired	802	45.4	(42.0, 48.8)
	Total	2 898	55.5	(53.7, 57.3)
Marital status**				
	Married	1 692	53.5	(51.1, 55.9)
	Living with your partner	207	55.1	(48.3, 61.7)
	Separated, but still legally married	67	59.7	(47.8, 70.8)
	Divorced	283	54.8	(48.9, 60.5)
	Widowed	179	45.8	(38.6, 53.1)
	Never been married	522	64.2	(60.0, 68.2)
	Total	2 950	55.3	(53.5, 57.1)

Note. For each subgroup Pearson Chi-Square tests were performed * represents significance at p<.05 and ** p<.01
(i) See Appendix C for specific details on the definitions and criteria for the Ethnicity categories reported here.
(ii) See Appendix C for specific details on the definitions and criteria for the Education categories reported here.
(iii) Note: 12.9% (weighted) of respondents did not respond to the household income question. Given the higher-than-normal non-response on household income, analyses including this variable should be interpreted with caution.
(iv) Employed category includes respondents in full-time employment, part-time employment, military service, or "other" employment.

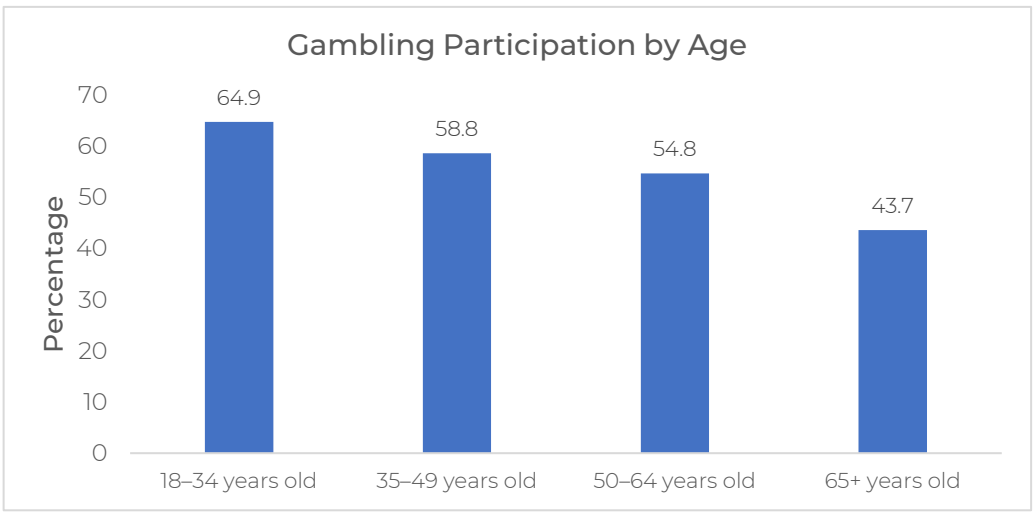


Figure 1: Gambling participation by age.

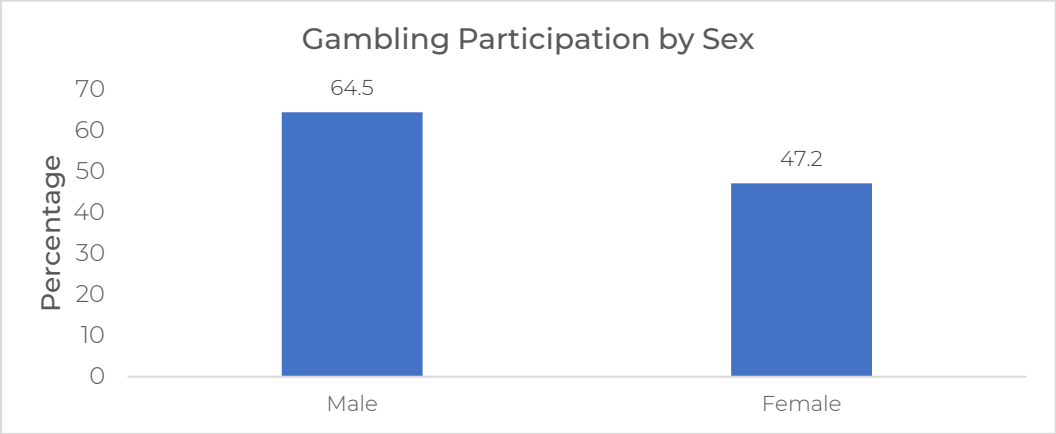


Figure 2: Gambling participation by sex.

The proportion of Cypriots who reported past year gambling (55.3%, 95% CI = 53.5, 57.1) is within the range of gambling prevalence estimates found in recent, comparable international studies, which range from 45.6% in France (Costes et al., 2020) to 69.0% in the state of Victoria, Australia (Rockloff et al., 2020) (see Table 5). The prevalence of past year gambling among Cypriots is most similar to the state of New South Wales, Australia (53.3%) and in Australia overall (56.9%), but lower than that observed in the state of Victoria, Australia.

The 55% of Cypriots who gambled in the past year were most likely to be male (see Table 5). This finding is similar to those observed in other recent prevalence studies (Costes et al., 2020; Hing et al., 2021; Mongan et al., 2022; Rockloff et al., 2020). In terms of age, Cypriots aged 18 to 34 years old were the most likely age group to report having gambled in the past year – with almost two-thirds (64.9%) reporting past year gambling. Comparable recent studies found gambling participation rates were higher among older groups (Browne et al., 2020; Mongan et al., 2022; Rockloff et al., 2020). The exception was in France where gambling participation did not vary much by age (Costes et al., 2020).

Table 5: Past year gambling based on demographic groups from comparable international studies

Year	Jurisdiction / citation	Past year gambling overall	Past year gambling by sex		Past year gambling by age[(i)]
		%	% of males	% of females	
2018-19	Victoria (Australia) / (Rockloff et al., 2020)	69.0	69.9	68.2	Gambling prevalence higher among older adults (65-74) than younger (18-34)
2019	New South Wales (Australia) / (Browne et al., 2020)	53.3	57	48	Gambling prevalence higher among older adults
2019	France / (Costes et al., 2020)	45.6	50.4	44.2	Little variation by age
2019-20	Republic of Ireland / (Mongan et al., 2022)	49.0	51.3	46.8	Gambling prevalence higher among 35-64 than 15–34-year-olds
2019-20	Australia / (Hing et al., 2021)	56.9	N/A	N/A	No information for overall gambling prevalence by age

Note. N/A refers to information that was not assessed in the study.
(i) When reporting gambling participation by age group, different studies reported different age groups sometimes making direct comparisons difficult.

Gambling Type

Table 6 presents past year participation for all types of gambling included in the survey, including whether it was in person, online, or both. The most popular form of gambling was lottery gambling with 49.5% of Cypriots indicating they played the lottery in the past year. This was followed by sports betting (10.2%) and then bingo (7.4%). The least common forms of gambling were exchange betting and betting on virtual sports (i.e., sports simulations). These figures are also presented in Figure 3.

Table 6: Past year gambling participation by gambling type.

Gambling type	*N*	Past year participation	
		%	95%CI
Any gambling	2 949	55.3	(53.5, 57.1)
Any lottery	2 949	49.5	(47.7, 51.3)
National Lottery tickets	2 949	11.8	(10.6, 13.0)
Instant lottery games (e.g., Kino, Super 3, or Extra 5)(i)	2 948	7.6	(6.7, 8.6)
Lottery games (e.g., Joker, Lotto, Proto)	2 949	34.3	(32.6, 36.0)
Scratch cards	2 949	30.4	(28.8, 32.1)
Sports betting or betting on other events	2 949	10.2^	(9.1, 11.3)
In person		*3.6*	(2.9, 4.3)
Online		*4.4*	(3.7, 5.2)
Both		*2.0*	(1.6, 2.6)
Bingo	2 949	7.4	(6.5, 8.4)
Casino table games (e.g., blackjack, poker)(ii)	2 949 and 2 945	4.1^	(3.5, 4.9)
In person		*2.8*	(2.3, 3.5)
Online		*0.5*	(0.3, 0.8)
Both		*0.7*	(0.4, 1.0)
Fruit/slot machines(ii)	2 949 and 2 948	3.3^	(2.7, 3.9)
In person		*2.3*	(1.8, 2.9)
Online		*0.4*	(0.2, 0.6)
Both		*0.5*	(0.3, 0.8)
Private betting with friends, family, or colleagues	2 949	2.8^	(2.3, 3.5)
In person		*1.9*	(1.4, 2.4)
Online		*0.4*	(0.2, 0.7)
Both		*0.5*	(0.3, 0.8)
Horse racing	2 949	1.5	(1.1, 2.0)
Virtual sports (i.e., sports simulations)	2 949	0.8	(0.5, 1.1)
Exchange betting(ii)	2 949 and 2 945	0.6^	(0.4, 0.9)
In person		*0.2*	(0.0, 0.3)
Online		*0.3*	(0.1, 0.5)
Both		*0.2*	(0.1, 0.4)
Other gambling activities		0.3^	(0.2, 0.6)
In person		*0.1*	(0.0, 0.3)
Online		*0.1*	(0.0, 0.3)
Both		*0.1*	(0.0, 0.2)

^ Figures represent the sum of italicized figures below.
(i) Note, due to a data entry error, one respondent had an invalid response recorded, resulting in the lower N
(ii) Note, due to a skip issue, the number of respondents who were asked about their participation in person, online, or both is lower than the number who were asked about general participation in these gambling activities. The different Ns are accounted for in the percentages and 95% CI calculations for each question type.

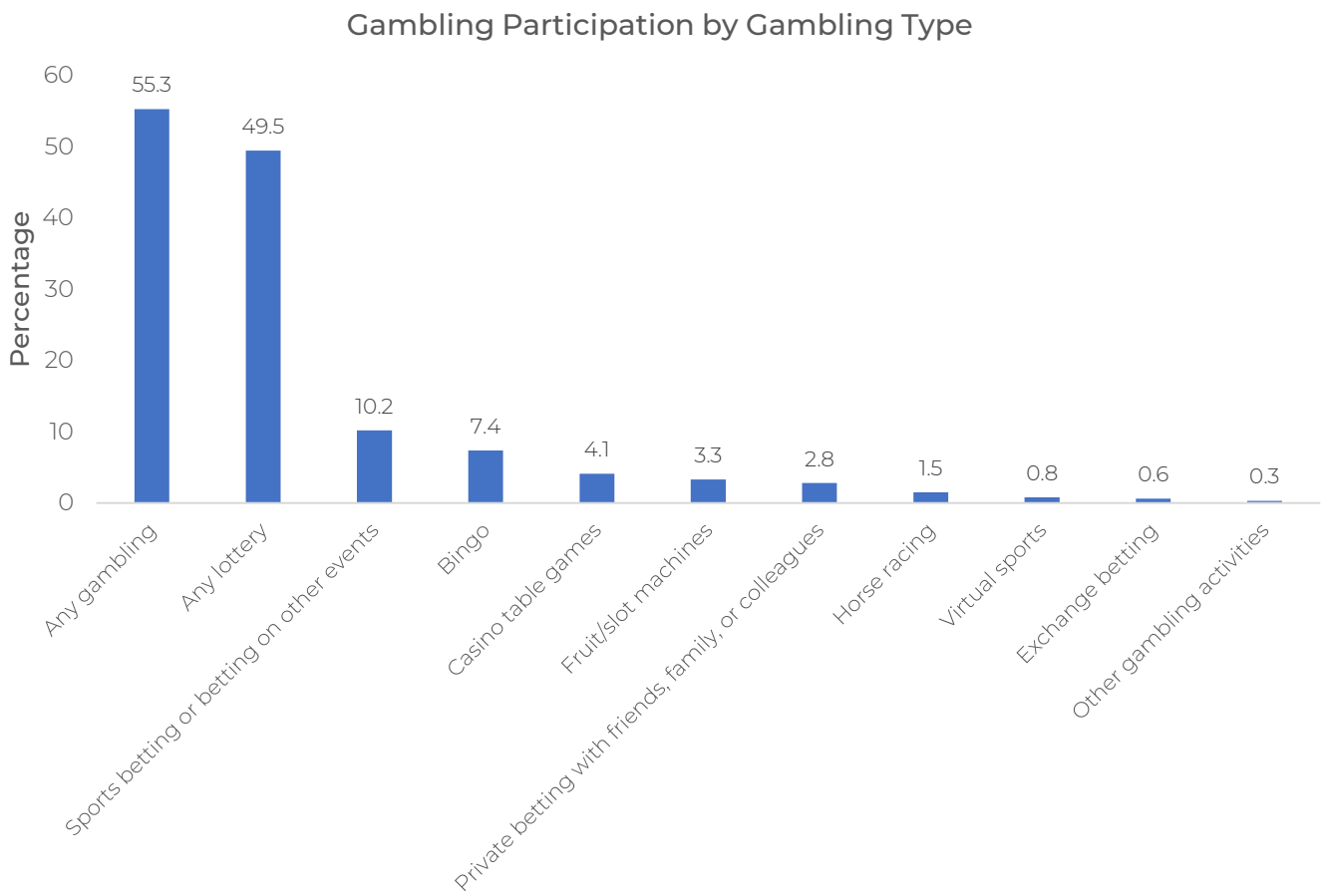


Figure 3: Gambling participation by gambling type.

Among recent comparable studies (see Table 7) lottery was also the most popular type of gambling (Costes et al., 2020; Hing et al., 2021; Mongan et al., 2022; Rockloff et al., 2020). However, because different jurisdictions refer to gambling types differently, it is difficult to directly compare to other studies. In France, after lottery and scratch cards, the most popular form of betting was sports betting followed by electronic gambling machines (Costes et al., 2020). In the Republic of Ireland, lottery was followed by gambling in a bookmaker shop or placing a bet on a horse or dog race (which is similar to sports betting but not exactly the same) (Mongan et al., 2022), and in Australia lottery was followed by betting on horses or greyhounds and then by electronic gambling machines in the state of Victoria (Rockloff et al., 2020). In New South Wales, the second most popular form of gambling was betting on horse or greyhounds followed by electronic gaming machines (Browne et al., 2020).

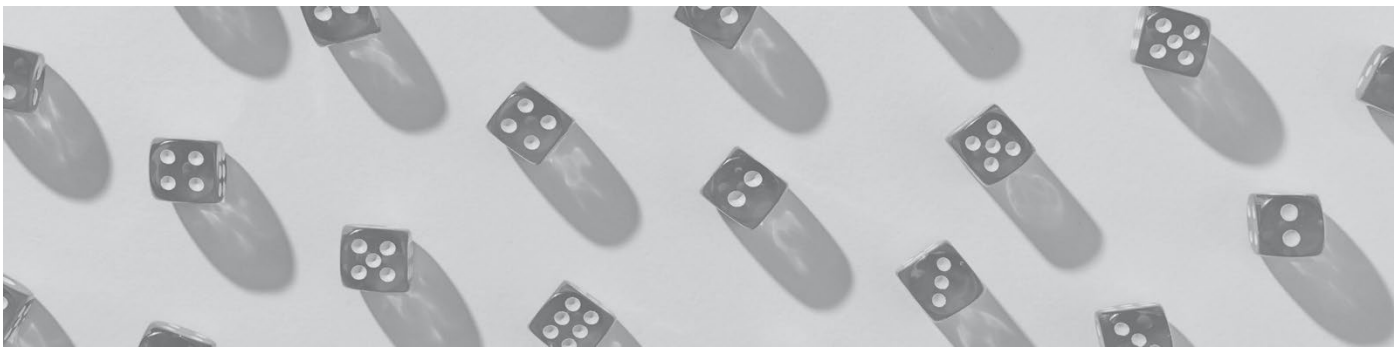


Table 7: Most popular gambling types among comparable international studies.

Year	Jurisdiction / Citation	1st most popular gambling type (%)	2nd most popular gambling type (%)	3rd most popular gambling type (%)
2018-19	Victoria (Australia) / (Rockloff et al., 2020)(i)	Australian lotteries (64.2%) and raffles or sweeps (54.0%)	Horse, harness, or greyhound race betting (28.7%)	Pokies or EGMs (20.4%)
2019	New South Wales (Australia) / (Browne et al., 2020)	Lottery tickets (37%)	EGMs (16%)	Horse or greyhound race betting (13%)
2019	France / (Costes et al., 2020)	Lottery (30.7.%) and scratch cards (26.9%)	Sports betting (5.2%)	EGMs (4.6%)
2019-20	Republic of Ireland / (Mongan et al., 2022)	Lottery or scratch cards in person (42.4%)	Gambled in bookmaker's shop (9.0%)	Betting at horse or dog race meetings (7.8%)
2019-20	Australia / (Hing et al., 2021)	Lotteries (41.5%)	Race betting (16.8%)	EGMs (16.4%)
2022	**Gambling and Problem Gambling in the Republic of Cyprus**	**Any lottery (49.5%)**	**Sports betting (10.2%)**	**Bingo (7.4%)**

(i) Note, estimates for Victoria, Australia are higher as they are reported as a percentage out of respondents who gamble, rather than as a percentage out of all respondents.

Gambling Format (online vs in-person)

Gambling format (i.e., whether someone is gambling online vs. in-person) has been associated with an individual's risk of experiencing gambling-related harm. Specifically, online gambling has been linked to greater risks of harm (Allami et al., 2021; Hing et al., 2021). Furthermore, researchers note that, for sports betting in particular, the shift to sports betting online has increased the speed of play and shifted sports betting from a discontinuous form of gambling, similar to lottery play, to a more continuous form of gambling similar to an electronic gaming machine or video lottery terminal (Lopez-Gonzalez & Griffiths, 2018) with associated increases in risks to sports gamblers (Abbott, 2020; Allami et al., 2021; Dickerson & O'Connor, 2006).

Included in Table 8 is a comparison of whether Cypriots gambled online or in-person by gambling type. Overall, respondents were more likely to engage in-person only (85.9%) rather than online gambling (14.1%). Among respondents who engaged in sports betting, significantly more gambled online than in-person only. In contrast, the opposite was true for casino table games (e.g., blackjack and poker), fruit/slot machines, and private betting, where respondents were significantly more likely to report engaging in these activities in-person only (see Figure 4).

Table 8: Past year participation by gambling format (i.e., online vs. in-person) and gambling type.

Gambling type	*N*	In person only		Any online participation	
		%	95% CI	%	95% CI
Any gambling**	1 630	85.9	(84.1, 87.5)	14.1	(12.5, 15.9)
Sports betting or betting on other events**	295	35.4	(30.3, 41.2)	64.6	(59.2, 70.0)
Exchange betting*	18	25.2	(8.0, 44.6)	74.8	(49.4, 88.5)
Casino table games (e.g., blackjack, poker)**	118	70.3	(61.7, 78.0)	29.7	(22.0, 38.3)
Fruit/slot machines**	95	72.6	(63.1, 80.8)	27.4	(19.2, 36.9)
Private betting with friends, family, or colleagues**	83	66.9	(55.7, 75.7)	33.1	(23.2, 43.1)
Other gambling activities	9	41.6	(17.3, 74.6)	58.4	(25.4, 82.7)

Note. For each gambling type Pearson Chi-Square tests were performed * represents significance at p<.05 and ** p<.01

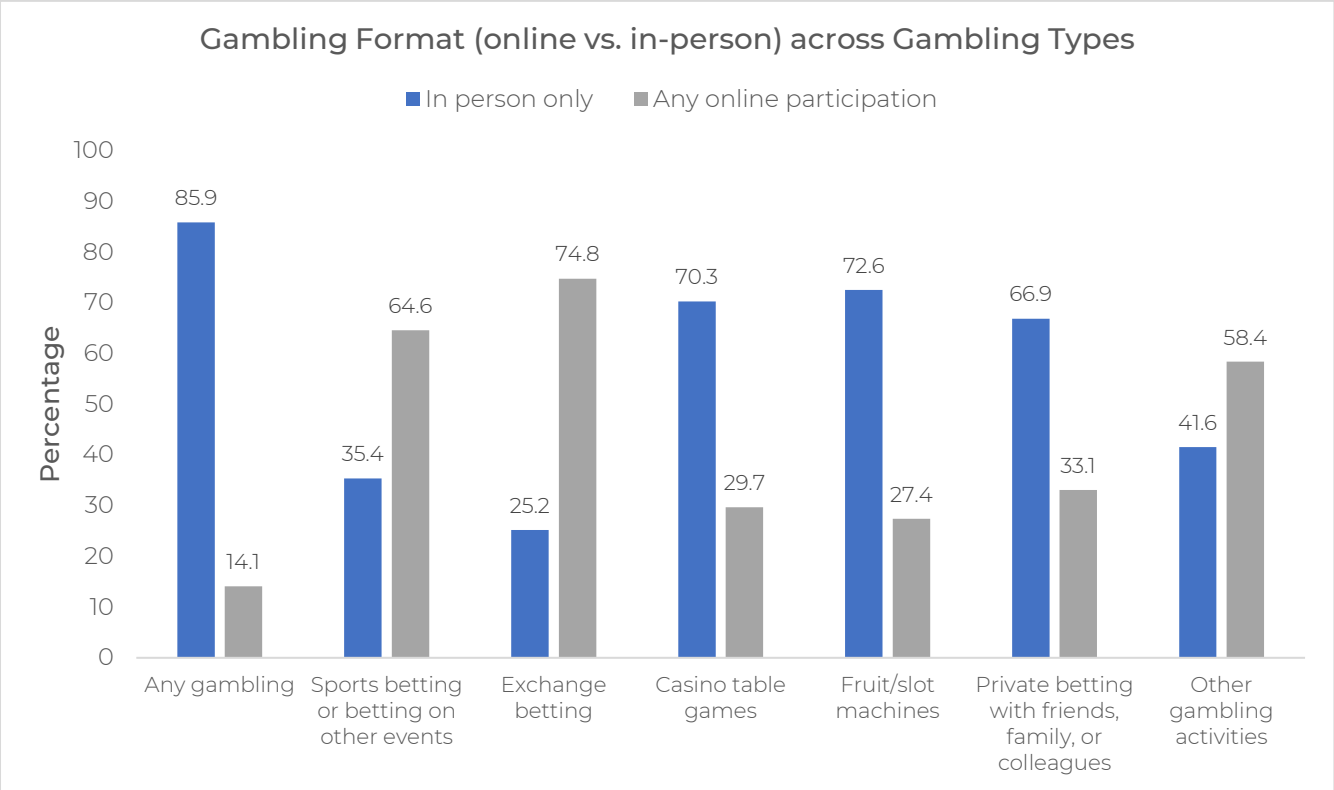


Figure 4: Gambling format (online vs. in-person) across gambling types.

It can be challenging to meaningfully compare rates of participation in online gambling across studies because different studies often assess online gambling participation differently, regulations regarding the availability of online gambling differ across countries, and jurisdictions with online gambling have different regulatory regimes and market maturity levels.

Within the Cypriot population, only 14.1% of past-year gamblers indicated any online gambling participation. This is similar to estimates from the state of New South Wales, Australia, and France. However, it is lower than rates observed in the state of Victoria, Australia, and Australia overall (see Table 9). The Cypriot estimate is higher than that from the Republic of Ireland. Note, however, that the Ireland estimate only includes online lottery gambling, as other forms of online gambling were not included in their survey.

Table 9: Online gambling across comparable international studies.

Year	Jurisdiction / Citation	% of past-year gamblers gambling online
2018-19	Victoria (Australia) / (Rockloff et al., 2020)	27.6
2019	New South Wales (Australia) / (Browne et al., 2020)	19
2019	France / (Costes et al., 2020)(i)	16.1
2019-20	Republic of Ireland / (Mongan et al., 2022)(ii)	6.5
2019-20	Australia / (Hing et al., 2021)	30.7
2022	**Gambling and Problem Gambling in the Republic of Cyprus**	**14.1**

(i) Percentage of online gambling for France is reported as the share of all gambling that is performed online, rather than the percentage of gamblers who participate in online gambling.

(ii) Percentage of online gambling for the Republic of Ireland includes only online lottery gambling, as this was the only type of online gambling included in the report.

Frequency by Gambling Type

To better understand how gambling frequency is related to type of gambling, we divided respondents who gambled in the past year (N=1 630; 55.3% of total sample) into two groups. The first group was composed of Cypriots who reported gambling at least once in the past year, but not monthly or more frequently on any single gambling type (*occasional gamblers*; 26.5% of PY gamblers, *N* = 432), and those who reported gambling at least once per month in the past year (*regular gamblers*; 73.5% of PY gamblers, *N* = 1 198).

Table 10 & Figure 5 present gambling frequency by gambling type. Though both groups report being most likely to have gambled on the lottery (90.0% and 89.5%), more than 1 in 5 regular gamblers (22.9%) reported betting on sports or other events compared to just over 1 in 20 (6.0%) occasional gamblers. Apart from the lottery, the only type of gambling occasional gamblers participated in more was bingo (14.5% vs 13.0%).

Table 10: Gambling frequency by gambling type.

Gambling type	Occasional gamblers[i]		Regular gamblers[ii]	
N	432		1 198	
	%	95% CI	%	95% CI
Any Lottery	90.0	(87.0, 92.6)	89.5	(87.7, 91.1)
National Lottery tickets	11.3	(8.6, 14.6)	25.0	(22.6, 27.5)
Instant lottery games (e.g., Kino, Super 3, or Extra 5)	3.7	(2.2, 5.8)	17.4	(15.3, 19.6)
Lottery games (e.g., Joker, Lotto, Proto)	52.1	(47.4, 56.8)	65.6	(62.9, 68.3)
Scratch cards	47.0	(42.3, 51.7)	57.9	(55.1, 60.7)
Sports betting or betting on other events	6.0	(4.1, 8.5)	22.9	(20.6, 25.3)
Bingo	14.5	(11.5, 18.1)	13.0	(11.2, 15.0)
Casino table games (e.g., blackjack, poker)	3.9	(2.4, 6.1)	8.7	(7.2, 10.4)
Fruit/slot machines	3.5	(2.0, 5.5)	6.8	(5.4, 8.3)
Private betting with friends, family, or colleagues	3.0	(1.7, 4.9)	5.8	(4.6, 7.3)
Horse racing	0.5	(0.1, 1.5)	3.7	(2.7, 4.9)
Virtual sports (i.e., sports simulations)	0.7	(0.2, 1.8)	1.7	(1.1, 2.5)
Exchange betting	0.7	(0.2, 1.8)	1.3	(0.7, 2.0)
Other gambling activities	0.2	(0.0, 1.1)	0.6	(0.3, 1.1)

(i) Respondents reporting gambling at least once in the past year, but not monthly or more frequently on any single gambling type.
(ii) Respondents reporting gambling at least once per month in the past year.

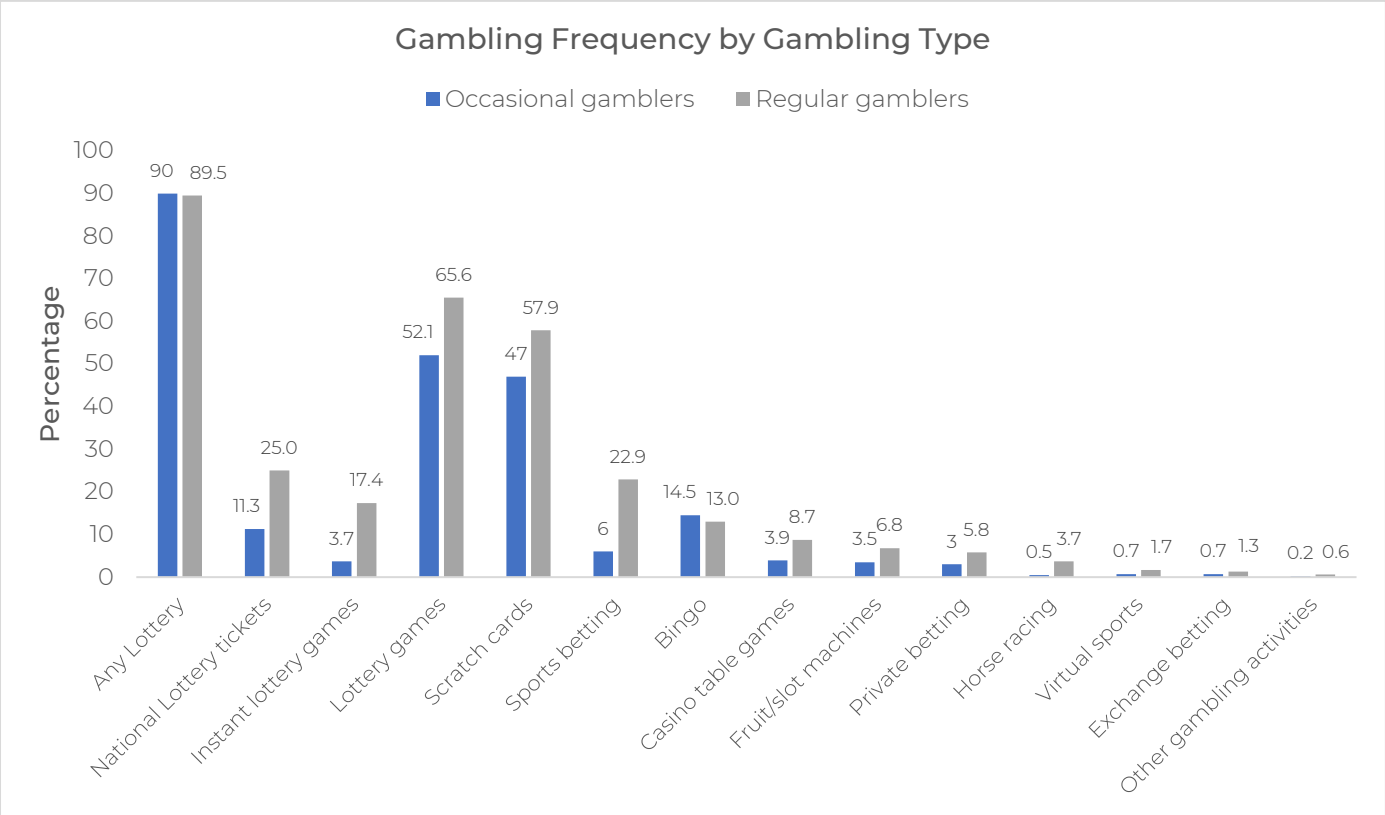


Figure 5: Gambling frequency by gambling type.

Number of Gambling Types

Overall, past year gamblers reported, on average, gambling on 1.45 (+ 0.21 SE) different gambling types. No respondent reported gambling on more than seven different gambling types in the past year. Regular gamblers reported gambling on significantly more types of gambling (1.54 + 0.03 SE) than occasional gamblers (1.23 + 0.02 SE), $t(1374)=8.54$, $p<0.001$.

Table 11 presents the number of gambling types occasional and regular gamblers participated in, in the past year. Among occasional gamblers, more than 8 in 10 (80.6%) reported gambling on one type and none reported gambling on 5 or more types. In contrast, among regular gamblers, 66.5% reported gambling on one gambling format and 1.3% reported gambling on 5 or more types.

Table 11: Number of different gambling types by level of gambling involvement.

	Occasional gamblers[(i)]		Regular gamblers[(ii)]	
N	432		1 197	
Number of types	%	95% CI	%	95% CI
1	80.6	(76.6, 84.1)	66.5	(63.8, 69.1)
2	16.7	(13.4, 20.4)	20.6	(18.3, 22.9)
3	2.5	(1.4, 4.4)	7.6	(6.2, 9.2)
4	0.2	(0.0, 1.1)	4.0	(3.0, 5.2)
5	0.0	(0.0, 0.6)	1.3	(0.8, 2.1)
Total	100.0		100.0	

(i) Respondents reporting gambling at least once in the past year, but not monthly or more frequently on any single gambling type.
(ii) Respondents reporting gambling at least once per month in the past year.

Reasons for Gambling

Among Cypriots who reported past year gambling, the most popular reason cited for gambling was excitement/entertainment (48.3%), followed by winning money (44.1%). Table 12 presents information about the main reason respondents reported for gambling. While there were no occasional gamblers who reported gambling to escape or distract themselves, 3% of regular gamblers indicated this was their main motivation for gambling.

Table 12: Reasons for gambling among occasional and regular gamblers.

	Occasional gamblers[i]		Regular gamblers[ii]	
N	416		1 165	
Reasons for gambling	%	95% CI	%	95% CI
For excitement/ entertainment	51.9	(47.1, 56.7)	47.0	(44.2, 49.9)
To win money	39.9	(35.3, 44.7)	45.6	(42.7, 48.4)
To socialize with family or friends	6.5	(4.4, 9.2)	1.8	(1.2, 2.7)
Because it makes you feel good about yourself	1.2	(0.5, 2.6)	1.9	(1.2, 2.8)
To support worthy causes	0.2	(0.0, 1.1)	0.5	(0.2, 1.1)
To escape or distract yourself	0.0	(0.0, 0.6)	3.0	(2.1, 4.1)
Other	0.2	(0.0, 1.1)	0.2	(0.0, 0.5)
Total	100.0		100.0	

(i) Respondents reporting gambling at least once in the past year, but not monthly or more frequently on any single gambling type.
(ii) Respondents reporting gambling at least once per month in the past year.

Gambling Expenditure

Self-reported gambling expenditure data can give insight into how much money people are (or think they are) spending on different gambling types, and the relative spending among different gambling types. To assess gambling expenditure, we asked respondents to estimate how much money they spent on a gambling type in a typical month. Respondents were asked this question for each gambling type they engaged in. We also informed respondents that "spend means how much you are ahead (+€) or behind (–€), or your net win or loss in an average month." Therefore, if respondents felt they were ahead in a typical month, the amount is reported as a positive value.

Self-reported data often contains outliers (i.e., amounts reported that are extreme and can influence measures of central tendency such as mean and median). This is particularly true for expenditure data. For this reason, when analysing the data, we first identified extreme and improbable outliers and removed them from the data. We did this by truncating the data at 4 standard deviations above and below the mean for each gambling type. The remaining expenditure data were summed to report the total and relative expenditures for each gambling type in the survey, which are reported in Table 13. Negative expenditure values in the table are a result of participants reporting average monthly overall wins.

Negative reported expenditure for virtual sports and casino are likely associated with the unreliability of self-reported expenditure data (see Volberg et al., 2001; Wood & Williams, 2007). In addition to negative reported gambling expenditure, several self-reported expenditure estimates (private betting, fruit/slot machines, exchange betting, virtual sports, casino table games, and other gambling activities) were considered statistically unreliable (i.e., relative standard error of the mean >30%). These are noted in Table 13.

Otherwise, self-reported expenditure appears to align with gambling participation rates with the lottery and sports betting together accounting for 92.6% of reported expenditure.

Table 13: Self-reported net expenditure by gambling type (N=1 630)

Gambling type	Total reported expenditure in a typical month (€)	Percent of total expenditure (%)
All gambling	36 437	100.0
All Lottery (including National Lottery tickets, instant lottery games (e.g., Kino, Super 3, or Extra 5), lottery games (e.g., Joker, Lotto, Proto), and scratch cards	26 491	72.7
Sports betting or betting on other events	7 241	19.9
Bingo	2 367	6.5
Horse racing	2 160	5.9
Private betting with friends, family, or colleagues	460◊	1.3
Fruit/slot machines	358◊	1.0
Exchange betting	229◊	0.6
Other gambling activities	31◊	0.1
Virtual sports	-785◊	-2.15
Casino table games (e.g., blackjack, poker)	- 2 115◊	-5.8

◊ Indicates estimates are unreliable, relative standard error of the mean >30%.

Problem and At-risk Gambling

Many different instruments are used to measure problem gambling among the general population. The three most commonly used instruments include the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987) and the Canadian Problem Gambling Index (CPGI) (Ferris & Wynne, 2001), along with various DSM-based instruments (Fisher, 2000; Gerstein et al., 1999; Kessler et al., 2008; Petry et al., 2005).

The Canadian Problem Gambling Index (CPGI) was developed in 2001 to be a valid and reliable instrument for use in population-based prevalence surveys and research. As such it was designed to provide greater distinction between sub-types of gamblers than the South Oaks Gambling Screen (Lesieur & Blume, 1987) or DSM-based instruments. In addition to being developed for use in population-based prevalence surveys, the CPGI also performed well when compared to clinician assessment (Young & Wohl, 2011). Among the 31 items that make up the CPGI are 9 items that assess PG severity. These items are referred to as the Problem Gambling Severity Index (Ferris & Wynne, 2001). This sub-scale permits the classification of respondents into four categories: *non-problem* gamblers, *low-risk* gamblers, *moderate-risk* gamblers, and *problem* gamblers.

The PGSI includes 9 items that are coded on a scale of 0 to 3 (0=”never”, 1=”sometimes”, 2=”most of the time”, and 3= “almost always”) and summed to result in a continuous scale ranging from 0 to 27. Traditionally, those scoring 0 are classified as *non-problem gamblers*, those scoring 1-2 are classified as *low-risk gamblers*, those scoring 3-7 are classified as *moderate-risk gamblers*, and those scoring 8 or more are classified as *problem gamblers* (see Table 14).

Overall, 43 individuals met the traditional PGSI (8+) criteria for PG (1.5%). Among those who reported past year gambling and completed the PGSI (N=1 621), 2.7% met the criteria for, and were categorized as problem gamblers (N=43), 6.5% were moderate risk (N=106), 10.9% were low-risk (N=177), and 79.9% were non-problem gamblers (N=1 295).

Among people who gambled in the last year, 1 in 5 (20.1%) endorsed at least one on the PGSI items indicating they experienced some gambling-related harm.

Table 14: Problem gambling severity classification of respondents based traditional scoring of the problem gambling severity index (PGSI).

Problem gambling severity	*N*	Percent	95% CI
Non-gamblers	1 319	44.9	(43.1, 46.7)
Non-problem gamblers (PGSI = 0)	1 295	44.1	(42.3, 45.8)
Low risk gamblers (PGSI = 1-2)	177	6.0	(5.2, 6.9)
Moderate risk gamblers (PGSI = 3-7)	106	3.6	(3.0, 4.3)
Problem gamblers (PGSI = 8+)	43	1.5	(1.1, 1.9)
Total	2 940	100.0	

Note: 3 respondents (representing 9 weighted respondents, i.e., 0.3% of the weighted sample) who reported past year gambling declined to respond to some items in the PGSI and therefore did not have a complete PGSI score. As a result, these respondents are not represented in the non-problem gambling, at-risk gambling, or problem gambling categories throughout the report.

Table 15 compares estimates of problem gambling severity classification assessed in this report with those assessed in other international prevalence studies. PG rates in Cyprus (1.5%; PGSI 8+) were higher than those observed in the state of Victoria, Australia (2018/2019, 0.7%) (Rockloff et al., 2020), the state of New South Wales Australia (2019, 1%) (Browne et al., 2020), and the Republic of Ireland (2019 – 20, 0.3%) (Mongan et al., 2022).

Table 15: Problem and at-risk gambling (%) across comparable international studies.

Year	Jurisdiction / Citation	Non-gamblers	Non-problem	Low risk	Moderate risk	Problem
2018-19	Victoria (Australia) / (Rockloff et al., 2020)	31.0	59.2	6.7	2.4	0.7
2019	New South Wales (Australia) / (Browne et al., 2020)	46.7	42.9	6.6	2.8	1.0
2019	France / (Costes et al., 2020)[i]	54.4	83.2	10.7	4.4	1.6
2019-20	Republic of Ireland / (Mongan et al., 2022)	51.0	45.5	2.3	0.9	0.3
2019-20	Australia / (Hing et al., 2021)	43.1	46.0	6.6	3.1	1.2
2022	**Gambling and Problem Gambling in the Republic of Cyprus**	**44.9**	**44.1**	**6.0**	**3.6**	**1.5**

(i) Note, the study from France reports non-problem, low-risk, moderate-risk, and problem gambling percentages out of all gamblers, rather than out of the entire sample. As such, these estimates are higher than those reported by the other studies, which report problem gambling risk and prevalence as a percentage out of the entire sample.

Because individuals in the moderate risk group with scores of 5-7 have been found to share many characteristics with those scoring as problem gamblers (8-27) (Currie et al., 2013; Stone et al., 2015; Williams & Volberg, 2013), we combined these two groups into a category that we refer to as *high-risk gamblers* in order to reliably examine the association between problematic gambling and other correlates assessed in the current study.

This approach has been used elsewhere and in some prevalence studies those scoring 5+ are referred to as PG (e.g., Volberg et al., 2017). However, in this study we have chosen to refer to those scoring 5+ as *high-risk gamblers.* Classification of respondents based on the alternate scoring of the PGSI are presented in Table 16.

Table 16: Problem gambling risk classification of respondents based on alternate scoring of the problem gambling severity index (PGSI).

Problem gambling risk category	*N*	Percent	95% CI
Non-gamblers	1 319	44.9	(43.1, 46.7)
Non-problem gamblers (PGSI = 0)	1 295	44.1	(42.3, 45.8)
At-risk gamblers (PGSI = 1-4)	251	8.5	(7.6, 9.6)
High-risk gamblers (PGSI = 5+)	75	2.6	(2.0, 3.2)
Total	**2 940**	**100.0**	

Note: 3 respondents (representing 9 weighted respondents, i.e., 0.3% of the weighted sample) who reported past year gambling declined to respond to some items in the PGSI and therefore did not have a complete PGSI score. As a result, these respondents are not represented in the non-problem gambling, at-risk gambling, or high-risk gambling categories throughout the report.

Demographics

To better understand who is experiencing gambling problems in Cyprus, we next examined the demographics of respondents by problem gambling risk classification. Table 17 includes non-problem, at-risk, and high-risk gamblers according to the demographic variables assessed in the survey.

Among at-risk and high-risk gamblers, those aged 18 to 34 years old made up a greater proportion (39.2% and 41.3 %) than among the total sample of this age group (23.5%) (see Figure 6). Conversely, among these groups, individuals aged 65 and older made up a smaller proportion (13.2% and 6.7%) than the total sample (26.6%).

In addition to significant age differences, large sex differences in gambling risk were detected in the results. Specifically, among high-risk gamblers, 92% were male and among at-risk gamblers 71.3% were male (see Figure 7).

Table 17: Problem gambling risk classification by demographic variables.

Demographic variable		Non-problem gamblers		At-risk gamblers		High-risk gamblers		Total Sample	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
N		1 295		251		75		2 940	
Age**									
	18-34 years old	24.8	(22.5, 27.2)	39.2‡	(33.3, 45.3)	41.3‡	(30.7, 52.6)	23.5	(22.0, 25.1)
	35-49 years old	28.6	(26.2, 31.1)	24.4	(19.4, 30.0)	29.3	(20.0, 40.3)	26.6	(25.1, 28.3)
	50-64 years old	23.1	(20.9, 25.5)	23.2	(18.3, 28.7)	22.7	(14.3, 33.1)	23.2	(21.7, 24.7)
	65+ years old	23.5	(21.2, 25.9)	13.2‡	(9.4, 17.8)	6.7‡	(2.6, 14.0)	26.6	(25.1, 28.3)
	Total	100.0		100.0		100.0		100.0	
Sex**									
	Male	49.3	(46.6, 52.1)	71.3‡	(65.5, 76.6)	92.0‡	(84.3, 96.6)	46.7	(45.0, 48.6)
	Female	50.7	(47.9, 53.4)	28.7‡	(23.4, 34.5)	8.0‡	(3.4, 15.7)	53.3	(51.4, 55.0)
	Total	100.0		100.0		100.0		100.0	
Ethnicity[(i)]									
	Greek Cypriot	80.4	(78.5, 82.8)	74.9	(69.3, 80.0)	82.7	(72.9, 89.9)	78.8	(77.2, 80.2)
	Other Cypriot	0.9	(0.5, 1.5)	1.6	(0.5, 3.7)	1.3	(0.1, 6.1)	0.8	(0.5, 1.2)
	Non-Cypriot Citizen	18.7	(16.7, 21.0)	23.5	(18.6, 29.0)	16.0	(9.1, 25.5)	20.4	(19.0, 21.9)
	Total	100.0		100.0		100.0		100.0	
District**									
	Nicosia	39.8	(37.1, 42.5)	42.6	(36.6, 48.8)	38.2	(27.8, 49.4)	40.3	(38.5, 42.1)

Demographic variable		Non-problem gamblers		At-risk gamblers		High-risk gamblers		Total Sample	
	Limassol	28.0	(25.6, 30.5)	27.1	(21.9, 32.8)	23.7	(15.2, 34.1)	27.4	(25.8 29.0)
	Larnaca	20.3	(18.2, 22.6)	9.6‡	(6.4, 13.7)	13.2	(7.0, 22.1)	17.6	(16.3, 19.0)
	Ammochostos/ Famagusta	4.6	(3.6, 5.9)	6.0	(3.5, 9.4)	11.8	(6.0, 20.5)	6.1	(5.3, 7.0)
	Paphos	7.3	(5.9, 8.8)	14.7‡	10.8, 19.5)	13.2	(7.0, 22.1)	8.6	(7.6, 9.6)
	Total	100.0		100.0		100.0		100.0	
Area of Residence									
	Urban	63.9	(61.3, 66.5)	68.0	(62.0, 73.5)	63.2	(52.0, 73.3)	64.8	(63.1, 66.5)
	Rural	36.1	(33.5, 38.7)	32.0	(26.5, 38.0)	36.8	(26.7, 48.0)	35.2	(33.5, 36.9)
	Total	100.0		100.0		100.0		100.0	
Education[(i)] **									
	Up to primary education	18.3	(16.3, 20.5)	6.3‡	(3.8, 9.9)	6.6‡	(2.6, 13.8)	20.8	(19.4, 22.3)
	Lower secondary education	8.5	(7.0, 10.1)	7.5	(4.8, 11.3)	7.9	(3.4, 15.5)	9.3	(8.3, 10.4)
	Upper secondary; Post-secondary; Tertiary non-university	50.2	(47.4, 52.9)	58.3	(52.2, 64.3)	63.2‡	(52.0, 73.3)	47.4	(45.6, 49.3)
	Undergraduate education (university)	16.9	(14.9, 19.1)	19.8	(15.3, 25.1)	18.4	(11.0, 28.2)	16.4	(15.1, 17.8)
	Postgraduate education (masters, PhD)	6.1	(4.9, 7.5)	7.9	(5.1, 11.8)	3.9	(1.1, 10.2)	6.0	(5.2, 6.9)
	Total	100.0		100.0		100.0		100.0	
Household Income[(ii)]									
	Less than €15,000	36.3	(33.5, 39.1)	31.6	(25.8, 37.8)	28.6	(19.6, 40.9)	37.7	(35.8, 39.6)
	€15 000 - €19 500	20.5	(18.3, 23.0)	23.7	(18.6, 29.6)	27.1	(17.8, 38.3))	21.2	(19.6, 22.8)
	€19 501 - €24 000	14.9	(12.9, 17.1)	15.8	(11.6, 21.0)	18.6	(10.8, 28.8)	14.4	(13.1, 15.8)
	€24 001 - €28 000	10.2	(8.5, 12.0)	8.3	(5.3, 12.5)	5.7	(2.0, 13.0)	9.5	(8.4, 10.7)
	€28 001 - €50 000	13.9	(12.0, 16.0)	16.7	(12.3, 21.9)	15.7	(8.6, 25.5)	13.5	(12.2, 14.8)
	€50 001 or more	4.2	(3.2, 5.6)	3.9	(2.0, 7.1)	4.3	(1.2, 11.0)	3.7	(3.0, 4.4)
	Total	100.0		100.0		100.0		100.0	
Employment status**	Employed[(iii)]	59.3	(56.6, 62.0)	62.4	(56.3, 68.2)	69.3‡	(58.3, 78.9)	54.7	(52.9, 56.6)
	Unemployed or income recipient	6.0	(4.8, 7.4)	11.6‡	(8.1, 16.0)	12.0	(6.1, 20.8)	6.7	(5.8, 7.6)
	Student	4.0	(3.0, 5.2)	7.2	(4.5, 10.9)	6.7	(2.6, 14.0)	4.1	(3.5, 4.9)
	Homemaker	4.7	(3.7, 6.0)	1.2‡	(0.3, 3.2)	0.0‡	(0.0, 3.3)	5.3	(4.5, 6.2)
	Unable to work due to illness/disability	1.1	(0.6, 1.8)	2.0	(0.8, 4.3)	1.3	(0.1, 6.1)	1.5	(1.1, 1.9)
	Retired	24.9	(22.6, 27.4)	15.6‡	(11.5, 20.5)	10.7‡	(5.2, 19.1)	27.7	(26.1, 29.3)
	Total	100.0		100.0		100.0		100.0	
Marital status**	Married	58.2	(55.5, 60.9)	46.6	(40.5 52.8)	45.5	(34.7, 56.6)	57.4	(55.6, 59.2)
	Living with your partner	5.9	(4.7, 7.3)	10.0	(6.7, 14.1)	16.9	(9.8, 26.4)	7.0	(6.1, 8.0)
	Separated, but still legally married	2.6	(1.9, 3.6)	1.2	(0.3, 3.2)	2.6	(0.5, 8.1)	2.3	(1.8, 2.9)
	Divorced	9.5	(8.0, 11.2)	7.6	(4.8, 11.3)	6.5	(2.5, 13.6)	9.6	(8.6, 10.7)
	Widowed	5.6	(4.5, 7.0)	3.2	(1.5, 5.9)	1.3	(0.1, 5.9)	6.1	(5.3, 7.0)
	Never been married	18.2	(16.1, 20.3)	31.5‡	(26.0, 37.4)	27.3	(18.3, 37.9)	17.7	(16.4, 19.1)
	Total	100.0		100.0		100.0		100.0	

‡ Denotes significant difference from total sample.
Note. For each demographic variable, Pearson Chi-Square tests were performed * represents significance at p<.05 and ** p<.01
(i) See Appendix C for specific details on the definitions and criteria for the Ethnicity and Education categories reported here.
(ii) Note: 12.9% (weighted) of respondents did not respond to the household income question. Given the higher-than-normal non-response on household income, analyses including this variable should be interpreted with caution.
(iii) Employed category includes respondents in full-time employment, part-time employment, military service, or "other" employment.

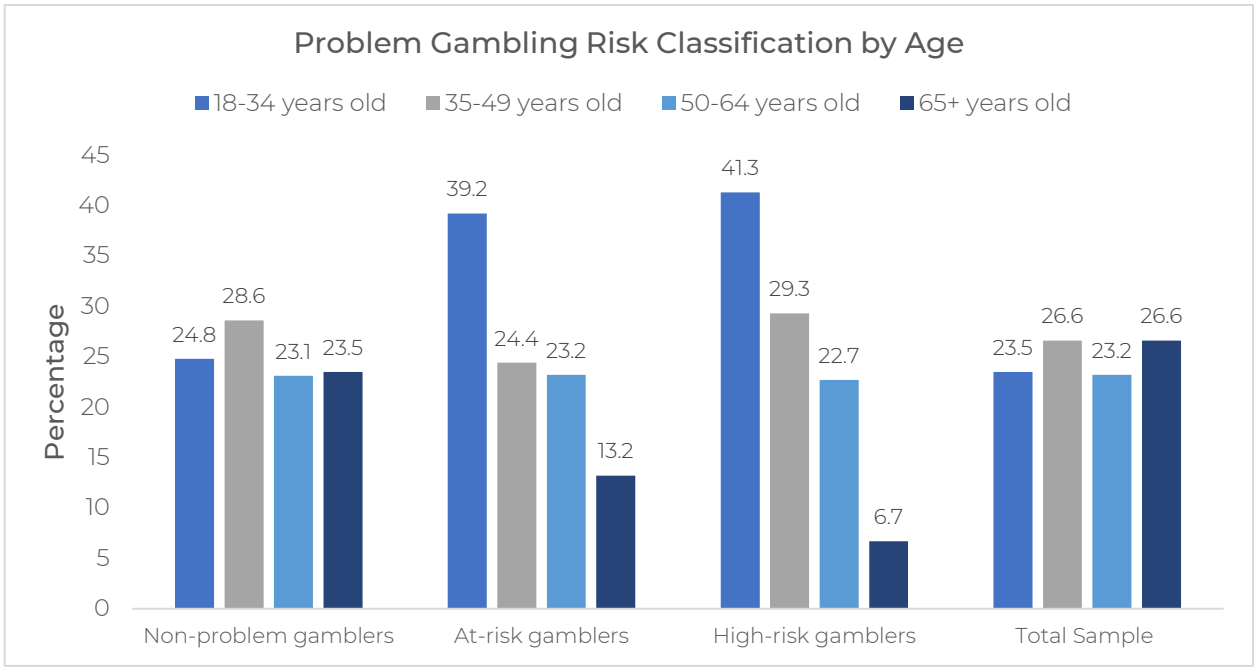


Figure 6: Problem gambling risk classification by age.

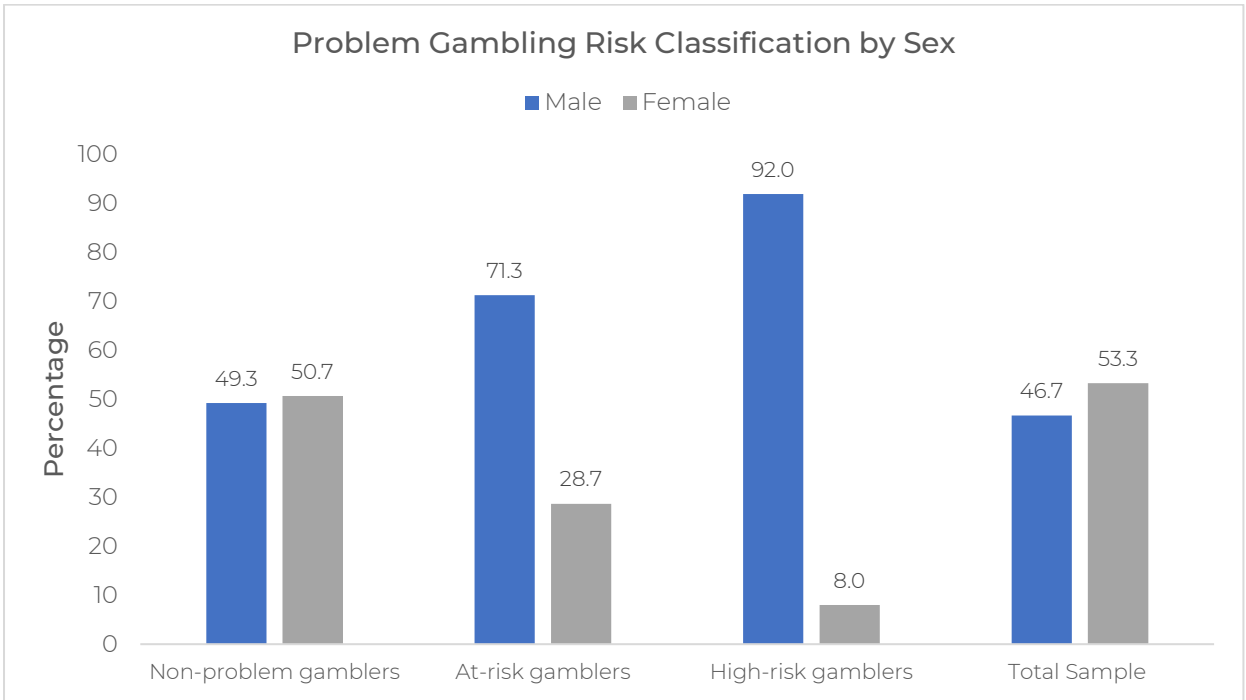


Figure 7: Problem gambling risk classification by sex.

The profile of people at high-risk of gambling harm is consistent with that observed in the literature. Namely being younger and male is associated with greater risk (Allami et al., 2021). In terms of comparing with the recent international studies, men were more likely than women to be problem gamblers in the two Australian states (Browne et al., 2020; Rockloff et al., 2020), as well as in the Republic of Ireland (Mongan et al., 2022). Additionally, all three of these studies found that problem gambling was more prevalent among younger adults than other age groups.

Gambling Type

Among non-problem gamblers the most popular type of gambling was the lottery (92.3%) (see Table 18). Aside from lottery gambling, the next most popular type of gambling was bingo (12.6%) followed by sports betting (10.5%). Lottery gambling was also most popular among at-risk gamblers (80.7%). However, the second and third most popular were sports betting (41.9%) and then bingo (17.7%). Lottery gambling was also popular among high-risk gamblers (72.0%). However, the most popular gambling type among high-risk gamblers was sports betting (75.3%) followed by lottery (72%). The third most popular type of gambling among high-risk gamblers was fruit/slot machines, with one third (33.3%) reporting play in the past year.

Overall, greater problem gambling risk was associated with reported involvement with continuous types of gambling (i.e., types of gambling that allow people to bet more frequently and spend more money in shorter periods of time). Specifically, the greater the risk classification, the greater the proportion of respondents that report engaging in continuous types of gambling (i.e., instant lottery games, sports betting, casino games, and fruit/slot machines) (see Table 18 & Figure 8).

Table 18: Problem gambling risk classification by type of gambling

Gambling Type	Non-problem gamblers (*N*= 1 295)		At-risk gamblers (*N*=251)		High-risk gamblers (*N*=75)	
	%	95% CI	%	95% CI	%	95% CI
Online participation (any gambling type)	7.9[a]	(6.5, 9.4)	32.6[b]	(27.1, 38.7)	61.7[c]	(50.4, 72.0)
Any Lottery	92.3[a]	(90.7, 93.6)	80.7[b]	(75.4, 85.1)	72.0[b]	(61.2, 81.2)
National Lottery tickets	19.9[a]	(17.7, 22.1)	24.8[a]	(19.7, 30.4)	27.0[a]	(17.9, 37.7)
Instant lottery games (e.g., Kino, Super 3, or Extra 5)	10.2[a]	(8.7, 12.0)	23.6[b]	(18.6, 29.1)	43.2[c]	(32.2, 54.2)
Lottery games (e.g., Joker, Lotto, Proto)	62.0[a]	(59.3, 64.6)	62.3[a]	(56.1, 68.1)	57.2[a]	(45.9, 67.9)
Scratch cards	56.5[a]	(53.8, 59.2)	51.2[a]	(44.9, 57.2)	46.4[a]	(35.5, 56.7)
Sports betting or betting on other events	10.5[a]	(8.9, 12.3)	41.9[b]	(35.9, 48.1)	75.3[c]	(64.6, 83.9)
Bingo	12.6[a]	(10.9, 14.5)	17.7[a]	(13.2, 22.6)	14.7[a]	(8.1, 24.0)
Casino table games (e.g., blackjack, poker)	4.5[a]	(3.5, 5.7)	16.1[b]	(11.8, 20.9)	31.0[c]	(21.5, 42.0)
Fruit/slot machines	2.8[a]	(2.1, 3.9)	13.8[b]	(9.8, 18.2)	33.3[c]	(23.2, 44.1)
Private betting with friends, family, or colleagues	3.2[a]	(2.3, 4.2)	11.6[b]	(8.1, 16.1)	16.4[b]	(9.4, 26.0)
Horse racing	1.2[a]	(0.7, 1.9)	8.5[b]	(5.5, 12.4)	11.5[b]	(5.8, 20.2)
Virtual sports (i.e., sports simulations)	0.7[a]	(0.3, 1.3)	3.6[b]	(1.8, 6.4)	6.3[b]	(2.3, 13.4)
Exchange betting	0.4[a]	(0.1, 0.8)	2.0[a]	(0.8, 4.3)	10.3[b]	(5.0, 18.7)
Other gambling activities	0.2[a]	(0.1, 0.6)	0.6[a, b]	(0.1, 2.1)	5.5[b]	(1.9, 12.3)

Note. Figures with matching letter superscripts indicate non significance determined via an assessment of overlapping 95% confidence intervals.

Format (online vs in-person)

Also included in Table 18 & Figure 8 is the proportion of non-problem, at-risk, and high-risk gamblers who gambled online or in person only in the past year. Among non-problem gamblers, less than 1 in 10 (7.9%) reported gambling online in the past year. In contrast, more than 6 in 10 (61.7%) high-risk gamblers reported past year online gambling.

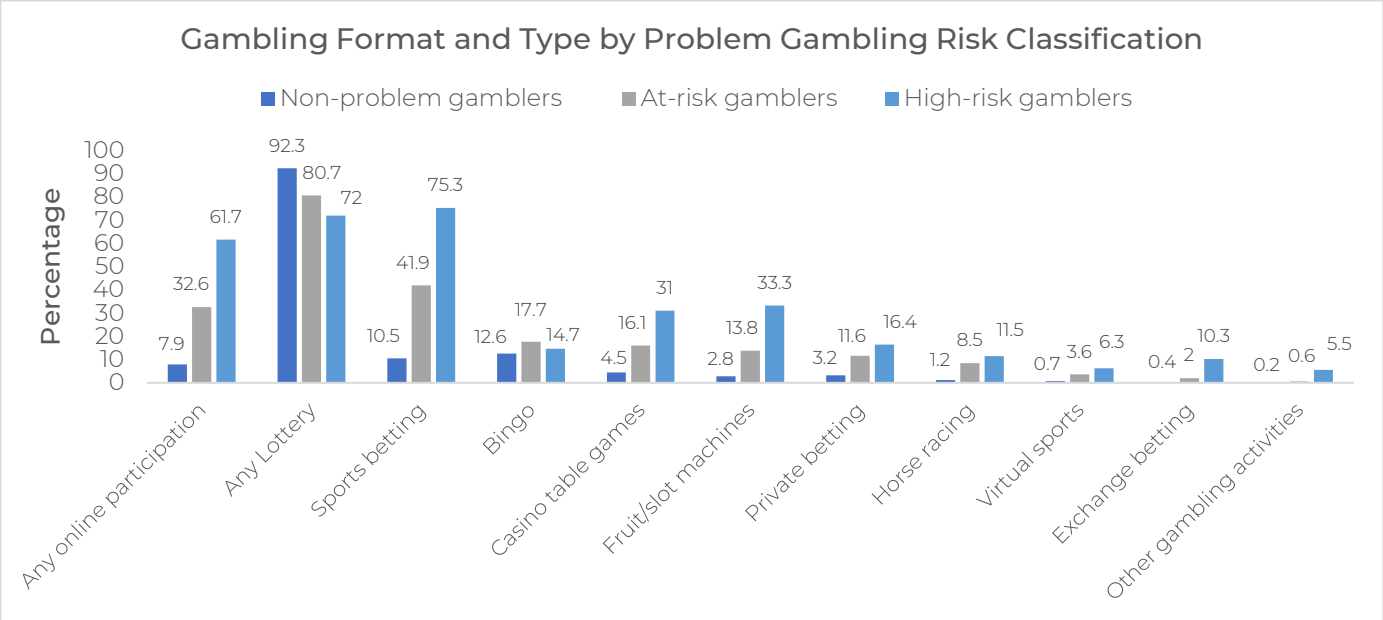


Figure 8: Gambling format and type by problem gambling risk classification.

Reasons for Gambling

Respondents who indicated any gambling in the past 12 months were asked the main reason for their gambling. The most popular reasons for gambling across all three problem gambling risk classification groups was for excitement/entertainment followed by winning money (see Table 19). Among non-problem gamblers, the third most endorsed reason for gambling was to socialize with family and friends (3.5%) whereas among at-risk and high-risk gamblers the third most endorsed reason for gambling was to escape or distract oneself (3.7% and 5.3%). This is in line with literature linking gambling to dissociate or escape with more problematic gambling (Jacobs, 1988; Young & Wohl, 2009). However, it is important to note that no-between group differences reached statistical significance.

Table 19: Reasons for gambling by problem gambling risk classification

Reasons for gambling	Non-problem gamblers (*N*= 1 249)		At-risk gamblers (*N*= 245)		High-risk gamblers (*N*= 76)	
	%	95% CI	%	95% CI	%	95% CI
For excitement/ entertainment	47.5[a]	(44.7, 50.3)	55.9[a]	(49.7, 62.0)	43.4[a]	(32.7, 54.6)
To win money	45.2[a]	(42.4, 47.9)	36.3[a]	(30.5, 42.5)	47.4[a]	(36.4, 58.5)
To escape or distract yourself	1.8[a]	(1.1, 2.6)	3.7[a]	(1.8, 6.6)	5.3[a]	(1.8, 12.0)
To socialize with family or friends	3.5[a]	(2.6, 4.7)	1.6[a]	(0.6, 3.8)	0.0[a]	(0.0, 3.2)
To support worthy causes	0.4[a]	(0.2, 0.9)	0.4[a]	(0.0, 1.9)	0.0[a]	(0.0, 3.2)
Because it makes you feel good about yourself	1.5[a]	(0.9, 2.3)	2.0[a]	(0.8, 4.4)	3.9[a]	(1.1, 10.2)
Other	0.2[a]	(0.0, 0.5)	0.0[a]	(0.0, 1.0)	0.0[a]	(0.0, 3.2)
Total	100.0		100.0		100.0	

Note. Figures with matching letter superscripts indicate non significance determined via an assessment of overlapping 95% confidence intervals.

In sum, our results demonstrate that among high-risk gamblers:

→ sports betting or betting on other events was the most popular type of gambling (75.3%) followed by the lottery (72.0%) and fruit/slot machines (33.3%). In contrast, the most popular types of gambling among non-problem gamblers were lottery (92.3%) followed by bingo (12.6%) and sports betting (10.5%);

→ more than 1 in 20 indicate their main reason for gambling was to escape or distract oneself (5.3%);

→ more than 6 in 10 (61.7%) reported past year online gambling. In contrast, among non-problem gamblers less than 1 in 10 (7.9%) reported gambling online in the past year.

This profile of people at high-risk of gambling harm is consistent with that observed in the literature. Namely, sports betting, in particular single-event sports betting, has been linked to greater risk of harm because sports betting is more normalized than other forms of gambling (e.g., Lopez-Gonzalez & Griffiths, 2018), sports betting is linked with demonstrating knowledge of sports and masculinity (Lamont & Hing, 2018; Lopez-Gonzalez et al., 2018), and people tend to overestimate how much skill plays a role in winning (Lopez-Gonzalez et al., 2018). Online gambling is also linked to greater risk of harm. In a meta-analysis of 104 studies, online (internet) gambling was associated with the largest effect size and was the biggest predictor of problem gambling followed by fruit/slot machines (Allami et al., 2021). The reason for the risk associated with these gambling types is that the time between when one places a bet and knows the outcome is short and therefore these types of gambling allow people to bet more frequently and spend more money in a shorter period of time. These types of gambling are also more conducive to dissociation and thus relief from negative states (Jacobs, 1988; Young & Wohl, 2009).

Health Associations

There is a known association between problem gambling and other physical and mental health issues such as substance use and mental health. In terms of substance use, alcohol use disorder and nicotine dependence have been found to often co-occur with problem gambling (Boothby et al., 2017; Chou & Afifi, 2011; Johansson et al., 2009). Many mental health disorders, including bipolar disorders, major depressive disorders, and anxiety disorders often co-occur with problem gambling (Chou & Afifi, 2011). Therefore, we examined substance use and mental health by gambling risk classification.

Substance Use

Compared to non-problem gamblers (36.2%), six in 10 (60%) high-risk gamblers reported smoking (see Table 20 and Figure 9). A similar pattern of findings was identified when examining binge alcohol use (i.e., five or more drinks on a single occasion for males and four or more drinks on a single occasion for females). Among non-problem gamblers, just over one-fifth (23.2%) reported past-month binge drinking; this proportion increases to 41.3% among high-risk gamblers. Additionally, high-risk gamblers (21.3%) were more likely to report having used alcohol or drugs while gambling in the past year compared to non-problem gamblers (2.6%) and were more likely to report feeling that they might have an alcohol or drug problem (11.8% versus 0.8%).

Table 20: Substance use by problem gambling risk classification.

	Non-problem gamblers (*N*= 1 249)		At-risk gamblers (*N*=251)		High-risk gamblers (*N*= 75)	
	%	95% CI	%	95% CI	%	95% CI
Tobacco use	36.2[a]	(33.7, 38.9)	50.2[b]	(44.0, 56.4)	60.0[b]	(48.7, 70.5)
Past month binge alcohol use[(i)]**	23.2[a]	(21.0, 25.6)	30.8[a,b]	(25.3, 36.7)	41.3[b]	(30.7, 52.6)
Used alcohol or drugs while gambling in the past year	2.6[a]	(1.9, 3.6)	10.0[b]	(6.7, 14.1)	21.3[b]	(13.1, 31.2)
Felt they might have an alcohol or drug problem	0.8[a]	(0.5, 1.5)	3.2[b]	(1.5, 5.9)	11.8[c]	(6.0, 20.5)

Note. Figures with matching letter superscripts indicate non significance determined via an assessment of overlapping 95% confidence intervals.
(i) We define binge drinking as consuming 5 or more drinks on an occasion for males and 4 or more drinks on an occasion for females.

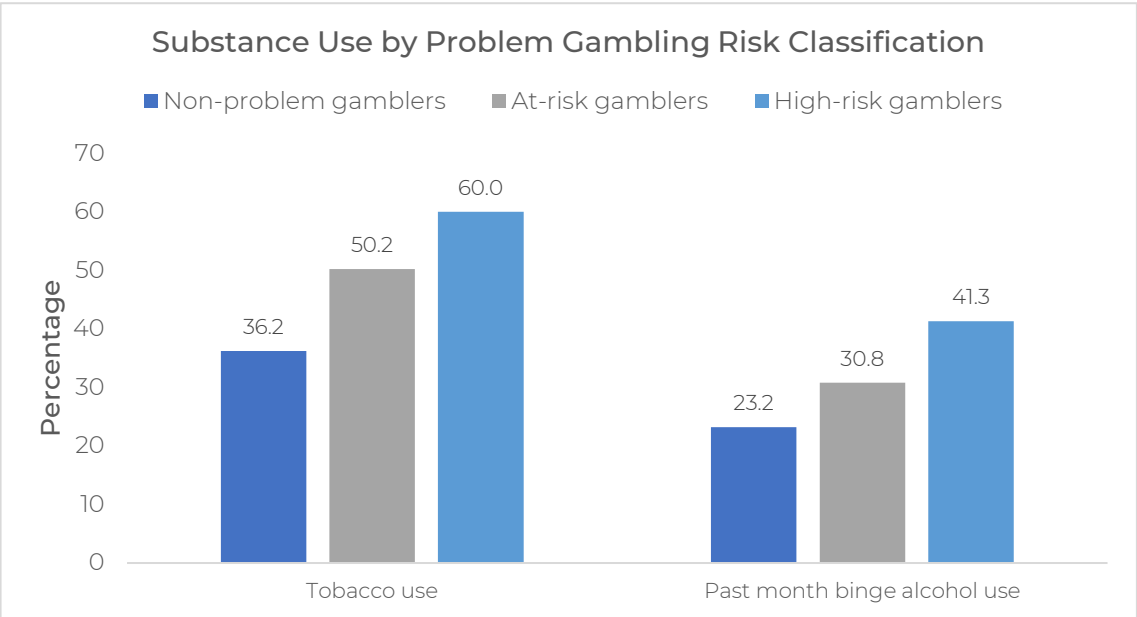


Figure 9: Substance use by problem gambling risk classification.

Only two of the comparable studies examined the link between tobacco use and at-risk or problem gambling (see Table 21). One examined tobacco use among problem gamblers (Rockloff et al., 2020), while the other examined problem gambling among tobacco users (Mongan et al., 2022). Despite differences in methods, results were consistent with those observed in the present study. In terms of alcohol use, two of the comparable studies, both from Australia, found

problem gamblers were more likely to consume alcohol while gambling compared to non-problem gamblers (Browne et al., 2020; Rockloff et al., 2020). Additionally, the study from the Republic of Ireland found those with an alcohol use disorder were more likely to be at-risk or problem gamblers (Mongan et al., 2022). Thus, the current findings are not dissimilar to those observed internationally.

Table 21: Substance use across comparable international studies.

Year	Jurisdiction / Citation	Tobacco use	Alcohol use
2018-19	Victoria (Australia) / (Rockloff et al., 2020)	39.4% of problem gamblers were daily smokers, compared to 10.0% of non-problem gamblers	31.0% of problem gamblers report often or always consuming alcohol while gambling, compared to 9.6% of non-problem gamblers
2019	New South Wales (Australia) / (Browne et al., 2020)	N/A	48% of problem gamblers report often or always consuming alcohol while gambling compared to 18% of non-problem gamblers
2019	France / (Costes et al., 2020)	N/A	N/A
2019-20	Republic of Ireland / (Mongan et al., 2022)	Smokers were more likely than non-smokers to be at-risk gamblers (6.5% vs. 2.5%) and problem gamblers (1.2% vs 0.1%)	Compared to non-drinkers, those with an alcohol use disorder were more likely to be at-risk (11.2% vs. 1.2%) or problem gamblers (1.5% vs. 0.0%)
2019-20	Australia / (Hing et al., 2021)	N/A	N/A
2022	**Gambling and Problem Gambling in the Republic of Cyprus**	**60.0% of high-risk gamblers use tobacco, compared to 36.2% of non-problem gamblers**	**41.3% of high-risk gamblers report past month binge drinking compared to 23.2% of non-problem gamblers**

Note. N/A refers to information that was not assessed in the study.

Other Health Associations

Included in Table 22 is self-reported health by problem gambling risk classification. Compared to non-problem gamblers, a significantly greater proportion of high-risk gamblers:

→ reported overall happiness in the past year as "low" or "very low" (7.6% versus 17.3%);

→ were significantly more likely to indicate past month (10.3% versus 20%) and past year serious mental health difficulties (17.9% versus 38.2%); and

→ were more likely to have been under a doctor's care because of physical or emotional problems brought on by stress (24.0% versus 12.9%).

Of concern is that almost four in 10 high-risk gamblers indicated experiencing serious mental health issues in the past year (see Figure 10). In addition, among high-risk gamblers, 2.7% reported they had seriously contemplated suicide in the past year and 3.9% indicated they had seriously thought about or attempted suicide as a result of their gambling. It is unclear what accounts for the difference between responses to these items. Perhaps in the second question, the mention of gambling served as a prompt that reminded respondents of a time where they may have thought about suicide.

Table 22: Physical and mental health by problem gambling risk classification

.		Non-problem gamblers[i] (*N*= 1 249)		At-risk gamblers[i] (*N*=251)		High-risk gamblers[i] (*N*= 75)	
		%	95% CI	%	95% CI	%	95% CI
Past year general health	Fair to poor	20.9[a]	(18.8, 23.2)	28.7[b]	(23.4, 34.5)	29.3[a,b]	(20.0, 40.3)
Past year happiness	Low to very low	7.6[a]	(6.3, 9.2)	10.4[a,b]	(7.1, 14.6)	17.3[b]	(10.1, 27.1)
Past year stress	High to very high	35.8[a]	(33.2, 38.4)	42.2[a]	(36.2, 48.4)	47.4[a]	(36.4, 58.5)
Been under a doctor's care because of physical or emotional problems brought on by stress	Yes	12.9 [a]	(11.2, 14.8)	15.6 [a, b]	(11.5, 20.5)	24.0 [b]	(15.4, 34.5)
Past month serious mental health issues	Yes	10.3[a]	(8.8, 12.1)	19.1[b]	(14.6, 24.3)	20.0[b]	(12.2, 30.1)
Past year serious mental health issues	Yes	17.9[a]	(15.9, 20.1)	25.1[a,b]	(20.0, 30.7)	38.2[b]	(27.8, 49.4)
Past year suicidality	Yes	1.1[a]	(0.6, 1.8)	1.2[a]	(0.3, 3.2)	2.7[a]	(0.6, 8.3)
Seriously thought about or attempted suicide as a result of gambling in the past year	Yes	0.1 [a]	(0.0, 0.4)	0.4 [a, b]	(0.0, 1.9)	3.9 [b]	(1.1, 10.2)
Childhood experiences	Unhappy to very unhappy	3.3[a]	(2.4, 4.3)	8.0[b]	(5.1, 11.8)	3.9[a,b]	(1.1, 10.2)

Note. Figures with matching letter superscripts indicate non significance determined via an assessment of overlapping 95% confidence intervals.

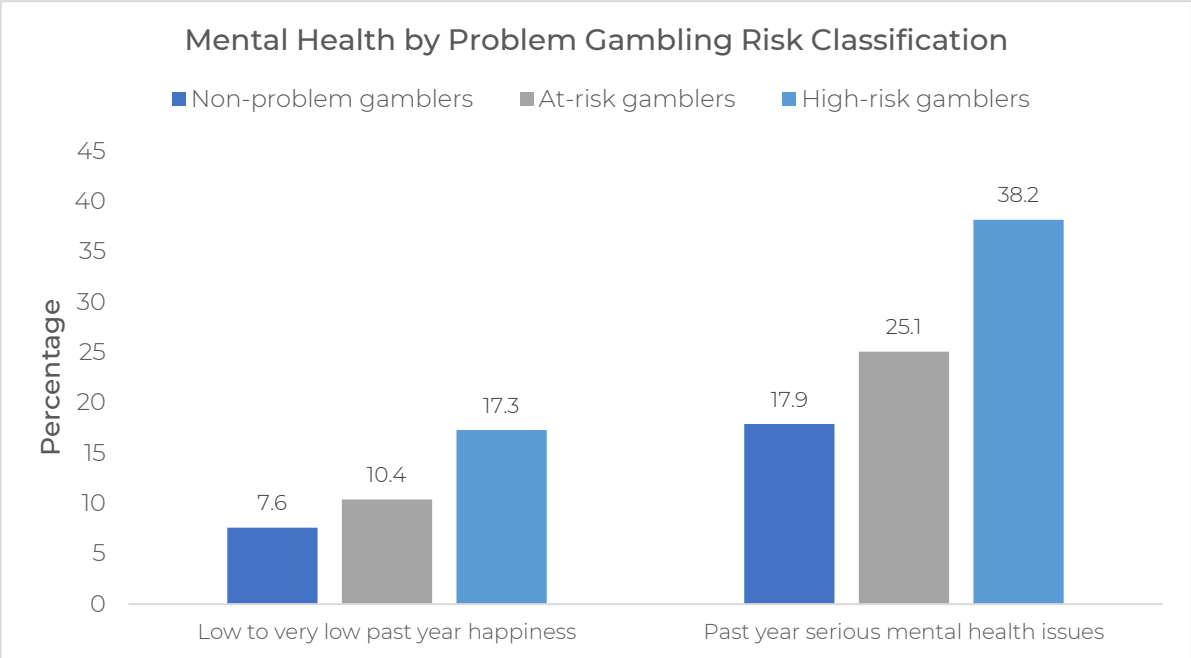


Figure 10: Mental health by problem gambling risk classification.

Included in Table 23 (below) are the physical and mental health correlates assessed among comparable international studies.

Table 23: Relationship between mental health and problem gambling assessed by comparable international prevalence studies

Year	Jurisdiction / Citation	Past year general health	Past year happiness	Past year stress	Past year serious mental health issues	Past year suicidality	Childhood experiences
2018-19	Victoria (Australia) / (Rockloff et al., 2020)	N/A	Satisfaction with life higher among non-problem than problem gamblers	K6 psychological distress: 39.0% of problem gamblers compared to 5.4% of non-problem gamblers experienced high distress		N/A	N/A
2019	New South Wales (Australia) / (Browne et al., 2020)	Problem gamblers more likely to report loss of sleep from gambling than non-problem gamblers	N/A	Emotional and psychological harms (i.e. feeling depressed, distressed about gambling, or feelings of hopelessness about gambling) were higher in problem than non-problem gamblers		Problem gamblers more likely to have suicidality than non-problem	N/A
2019	France / (Costes et al., 2020)	N/A	N/A	N/A	N/A	N/A	N/A
2019-20	Republic of Ireland / (Mongan et al., 2022)	N/A	N/A	N/A	N/A	N/A	N/A
2019-20	Australia / (Hing et al., 2021)	Not compared based on PGSI category	N/A	Not compared based on PGSI category		N/A	N/A
2022	**Gambling and Problem Gambling in the Republic of Cyprus**	**High-risk gamblers report poorer general health than non-problem gamblers**	**High-risk gamblers more likely to report low happiness than non-problem gamblers**	**High-risk gamblers more likely to report high stress than non-problem gamblers, but this difference was not significant**	**High-risk gamblers more likely to report past year and past month serious mental health issues than non-problem gamblers**	**High-risk gamblers more likely to report suicidality due to gambling than non-problem gamblers**	**High-risk gamblers more likely to report unhappy childhood experiences than non-problem gamblers**

Note. N/A refers to information that was not assessed in the study.

Other Variables Assessed

Compared to non-problem gamblers, high-risk gamblers were more likely to have faulty cognitions about gambling, specific memories of their first experiences of gambling, and family members with gambling, alcohol, or drug problems, (see Table 24). High-risk gamblers were also more likely to report lying, experience a loss of control, and have problems stopping.

Among high-risk gamblers, 48.7% reported having tried to stop or cut down on their gambling, compared to 22.7% of at-risk and 3.9% of non-problem gamblers (see Table 24). Among respondents who reported trying to stop or cut down on gambling, only 22.9% sought help to do so. A greater proportion of high-risk gamblers sought help compared to at-risk or non-problem gamblers. However, this difference did not reach significance, possibly because of the small number of respondents who sought help.

Finally, age of first gambling significantly differed across gambling risk classifications ($p<0.05$). Specifically, non-problem gamblers reported being 15.2 years old on average when they first gambled, compared to 14.3 years old for at-risk and 13.9 years old for high-risk gamblers.

Table 24: Responses to other questionnaire items by problem gambling risk classification.

		Non-problem gamblers (*N*= 1 295)		At-risk gamblers (*N*= 251)		High-risk gamblers (*N*= 75)	
		%	95% CI	%	95% CI	%	95% CI
Faulty Cognition	Belief that after losing many times in a row you are more likely to win	15.9 [a]	(13.9, 18.1)	34.7 [b]	(28.9, 40.8)	47.4 [b]	(36.4, 58.5)
Faulty Cognition[(i)]	Belief that you could win more if you used a certain system or strategy	28.6 [a]	(26.0, 31.3)	52.5 [b]	(46.2, 58.7)	63.2 [b]	(52.0, 73.3)
Family problems	Anyone in the family ever had a gambling problem	14.0 [a]	(12.2, 15.9)	19.8 [a, b]	(15.3, 25.2)	25.3 [b]	(16.6, 36.0)
Family problems	Anyone in the family ever had an alcohol or drug problem	11.3 [a]	(9.7, 13.1)	16.0 [a]	(11.9, 20.9)	17.1 [a]	(9.9, 26.7)
Lying	Lied to family members or others to hide gambling	0.2 [a]	(0.1, 0.6)	15.1 [b]	(11.1, 20.0)	61.8 [c]	(50.6, 72.2)
Loss of control	Bet or spent more money than they wanted on gambling	1.6 [a]	(1.0, 2.4)	23.5 [b]	(18.6, 29.0)	74.0 [c]	(63.1, 83.0)
Problem recognition	Wanted to stop betting money or gambling, but didn't think they could	0.6 [a]	(0.3, 1.2)	12.8 [b]	(9.1, 17.4)	45.3 [c]	(34.4, 56.6)
Gambling history	Ever tried to stop or reduce gambling	3.9 [a]	(2.9, 5.0)	22.7 [b]	(17.9, 28.2)	48.7 [c]	(37.7, 59.8)
Gambling history[(ii)]	Ever sought help about a gambling problem	18.0 [a]	(9.3, 30.3)	17.5 [a]	(9.4, 28.9)	37.8 [a]	(23.6, 53.9)
First experiences	Memory of a big win when first started gambling	24.9 [a]	(22.6, 27.3)	55.4 [b]	(49.2, 61.4)	77.3 [c]	(66.9, 85.7)
First experiences	Memory a big loss when first started gambling	4.3 [a]	(3.3, 5.5)	28.3 [b]	(23.0, 34.1)	41.3 [b]	(30.7, 52.6)

(i) Note, 12.8% of weighted respondents did not respond to the faulty cognition question about believing you could win more if you used a certain system or strategy. Given the higher-than-normal non-response rate, analyses including this variable should be interpreted with caution.

(ii) Note, this question was only asked of respondents who indicated they tried to stop or reduce their gambling, so the sample size for this question is small (N=50 for non-problem gamblers, N=57 for at-risk gamblers, and N=37 for high-risk gamblers).

Overall, the above findings are in line with the gambling studies literature. For example, there is an extensive research base examining faulty cognition among those with gambling problems. Specifically, there is research indicating cognitive distortions can lead gamblers to continue gambling despite experiencing significant financial harm (Goodie & Fortune, 2013; Walker, 1992) and faulty cognitions/cognitive distortions are commonly found among gamblers (e.g., Subramaniam et al., 2017b). In addition, a family history of gambling problems or substance use disorders are known risk factors for problem gambling (Allami et al., 2021; Young et al., 2021). Loss of control, which can present as loss-chasing and over-expenditure has also commonly been implicated in problem gambling (Jacobs, 1986; Parke et al., 2014). Finally, younger age of first gambling is associated with more severe gambling problems (National Research Council, 1999; Rahman et al., 2012), and having specific memories of a big win are also associated with individuals developing problem gambling (Custer & Milt, 1985; Edson et al., 2023).

Summary and Implications

In 2022, the Cyprus National Betting Authority commissioned Greo Evidence Insights and Insights Market Research to assess rates of gambling participation and problem gambling to enhance the Authority's understanding of gambling harms in the Republic of Cyprus and serve as a foundation from which to build public health approaches to addressing gambling related harm.

Specifically, the prevalence study was designed to assess gambling participation and problem and at-risk gambling, to analyse each by demographics, gambling type, gambling format, gambling frequency by type, and reasons for gambling, to compare to other international prevalence studies, and to make recommendations.

COMPARISON TO CYPRUS PREVALENCE STUDIES

In 2018, Kokkalou et al. (2018) found that among adults, 75% reported regular involvement with games of chance, 81% were classified as non-risk, 13% were classified as at-risk, and 6% were classified as Problematic/Pathological Gamblers. A subsequent study conducted in 2019-2020 as part of the "Understanding Gambling Behaviour in Cyprus" project sampled 2 118 people and also used a DSM-based instrument (Neophytou et al., 2021). They found 25% of respondents reported gambling at least once per week and that 7% met their criteria for PG. The estimates generated in this study differed from those observed by Kokkalou et al. (2018) and Neophytou et al. (2021). Specifically, in the current study we found that just over half of respondents (55%) reported participating in one or more gambling activities in the past year. Further we found that 44% of the Cypriot population were non-problem gamblers, 6% were low risk gamblers, almost 4% (3.6%) were moderate risk gamblers, and 1.5% were problem gamblers. It is possible that these differences could be due to a decrease in gambling participation and gambling-related problems. However, these studies employed nonstandard measures of PG, making it difficult to determine whether observed changes are real or are the result of these significant methodological differences.

COMPARISON TO INTERNATIONAL PREVALENCE STUDIES

In 2021, just over half of the Cyprus population (~55%) reported gambling. As noted in the Results and Discussion section above, this participation rate is very similar to other countries that conducted prevalence studies during a comparable time frame using similar methods. Internationally, past year gambling participation ranged from 45.6% in France (Costes et al., 2020) to 69% in the state of Victoria, Australia (Rockloff et al., 2020). Further the demographic profile of Cypriots who gambled in the past year was also similar to that observed internationally, i.e., most likely to be male and among those in the younger (18-34) age group. In addition, the most popular form of gambling was lottery (49.5%) followed by sports betting (10.2%). This was also similar to that observed among recent comparable international studies.

Overall, respondents were more likely to report gambling in-person (only) (85.9%) than report gambling online (14.1%). This finding is within the range of that observed among comparable international studies. Among respondents who engaged in sports betting, significantly more gambled online (64.6%) than in-person (only) (35.4%).

In terms of problem gambling severity, 1.5% of Cypriots met the criteria for problem gambling. Overall, problem gambling prevalence rates have

been found to range between 0.4–8.1% (Williams et al., 2012). However, these estimates have varied over time and are also influenced by the survey methods used as well as the assessment instruments employed. Among comparable recent international studies, the rate of problem gambling in Cyprus was at the high end of the range. Specifically. It was higher than rates observed in the state of Victoria, Australia (2018/2019, 0.7%) (Rockloff et al., 2020), the state of New South Wales Australia (2019, 1%) (Browne et al., 2020), and the Republic of Ireland (2019 – 20, 0.3%) (Mongan et al., 2022).

In order to in order to reliably examine the association between problematic gambling and other variables assessed in the current study, we combined the moderate risk group with the problem gambling group into a category referred to as *high-risk gamblers*. Overall, high-risk gamblers were more likely to report involvement with continuous types of gambling (i.e., types of gambling that allow people to bet more frequently and spend more money in shorter periods of time). Specifically, the greater the risk classification category, the greater the proportion of respondents that report engaging in continuous types of gambling (i.e., instant lottery games, sports betting, casino games, and fruit/slot machines). This has been consistently observed in the wider gambling studies literature. Allami et al., (2021) conducted a meta-analysis of 104 studies of gambling prevalence found that among the 57 problem gambling risk factors assessed, those with the highest effect sizes were engagement with continuous-play format gambling products.

IMPLICATIONS

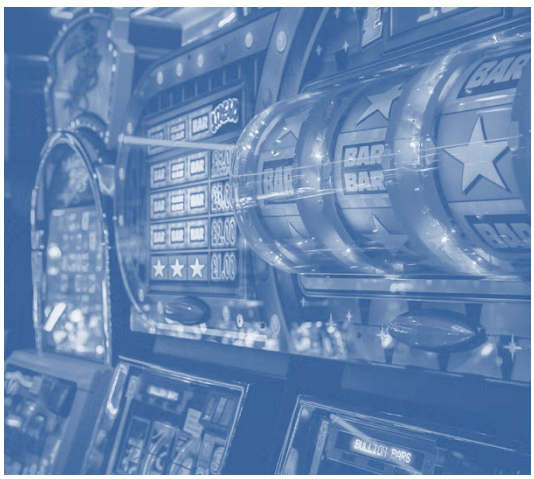
In May 2022, The Authority released its Safer Gambling Strategy for 2022–2025 (National Betting Authority, 2022) (hereafter referred to as "the Strategy"). In this strategy, the Authority describes how it will use a public health lens to address gambling-related harm in Cyprus by:

→ protecting society from harms related to gambling;

→ preventing gambling-related harm; and

→ supporting people affected by gambling-related harm.

Results from the current study can be valuable in assisting the Authority in achieving its strategic priorities.



Protecting Society from Harms Related to Gambling

As noted in the Strategy, gambling occurs within an environment influenced by gambling regulation, accessibility, and advertising. The current report found that rates of problem gambling in the Republic of Cyprus were not concerningly high (i.e., high, but within the range of those observed internationally). However, lack of trend data makes it impossible to assess whether the rate is increasing or decreasing.

This prevalence study supports a growing evidence base demonstrating that product factors, specifically continuous-play format gambling products such as electronic gambling machines (versus discontinuous types of gambling such as bingo or lottery) are reliable predictors of problem gambling in the population. Therefore, it seems reasonable that the Authority can protect society from harms related to

gambling by exercising prudence when enacting measures that may result in greater participation in continuous-play format gambling products such as electronic gaming machines or internet gambling that is associated with a short time period between wager and outcome.

In addition to being mindful of the connection between product factors, there is also growing evidence that the likelihood of experiencing gambling-related harm is related to gambling involvement (Hodgins et al., 2022). Increases in gambling availability and advertising can be expected to increase the number of people who gamble and their level of gambling involvement. Therefore, though problem gambling rates in Cyprus are presently within the range of those observed internationally, it is prudent to be mindful these rates can change if the right balance of market liberalization and regulation is not maintained. This is a challenge internationally as online gambling and sports betting becomes more popular and pressure to liberalize markets increases.

Preventing Gambling Related Harm

The results of this research suggest some Cypriots are at greater risk of harm than others. Specifically, younger (18 to 34) males who engage in online sports betting are at greatest risk of gambling related harm. These results suggest that information campaigns aimed at this group may be advisable.

Supporting People Affected by Gambling-Related Harm

Of concern is the finding that almost four in 10 high-risk gamblers indicated experiencing serious mental health issues in the past year. One key reason people gamble problematically is relief from negative affect (Young & Wohl, 2009). This is also a motivation for problematic substance use. Harm can mount very quickly among people gambling at risky levels. The resulting indebtedness and shame has been found to be a critical factor in the association between gambling and suicide (Marionneau & Nikkinen, 2022). Among Cypriots, we found 2.7% of high-risk gamblers indicated they had seriously contemplated suicide in the past year. Caring for people who may be experiencing such ideations is a critical element in a public health approach to gambling related harm.

In addition, the current results suggest there may be a benefit in having mental health and substance use treatment programs in Cyprus screen for PG. This may require training for mental health treatment providers, many of whom may be unfamiliar with problem gambling as a disorder or how to screen clients for problematic gambling.

SUMMARY AND CONCLUSIONS

This is the first gambling participation and problem gambling prevalence study conducted in the Republic of Cyprus that permits international comparison. Overall, gambling participation, levels of problem gambling and other variables assessed were comparable to those observed internationally. However, this is the first Cyprus prevalence study using standard methods. Therefore, trends are impossible to ascertain from the present study. However, the information included in this report provides the Authority and other stakeholders interested in gambling a baseline that can be used to conduct future assessment and from which to assist in assessing the efficacy of The Authority's Safer Gambling Strategy for 2022–2025.

Appendix A: Questionnaire

Question label	Survey section/item
	PART 1: HEALTH QUESTIONS (16 items) Note: All respondents were presented with Part 1
P1_1_1	Which of the following is your preferred recreational activity? Would you say… (single response) 1. Watching TV 2. Walking or hiking 3. Gardening 4. Reading 5. Socializing with friends or family 6. Traveling 7. Gambling 8. Other:_____[specified] 9. Sports and gymnastics
P1_2	Over the past 12 months, would you say that in general your health has been…? a) Excellent b) Very good c) Good d) Fair e) Poor f) I don't' know (not prompted) g) Refused (not prompted)
P1_3	In the past 12 months, how would you rate your overall level of stress? Would you say…? a) Very high b) High c) Moderate d) Low e) Very low f) I don't' know (not prompted) g) Refused (not prompted)
P1_4	Still thinking about the last 12 months, have you been under a doctor's care because of physical or emotional problems brought on by stress? a) Yes b) No c) Don't know (not prompted) d) Refused (not prompted)
P1_5	In the past 12 months, how would you rate your overall level of happiness? Would you say…? a) Very high b) High c) Moderate d) Low e) Very low f) I don't' know (not prompted) g) Refused (not prompted)

P1_6 Do you smoke any tobacco products (excluding electronic cigarettes or similar electronic devices)?

a) Yes, daily
b) Yes, occasionally
c) Not at all
d) I don't' know (not prompted)
e) Refused (not prompted)

P1_7 During the past 12 months, how many days per month did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage or liquor? Please report the average number of days per month that you consumed alcohol.

a) _____ Days per Month
b) I can't remember (not prompted)
c) Refused (not prompted)

[IF "0 Days per month", skip question 8]

P1_8 Considering all types of alcoholic beverages, how many times during the past 30 days did you have:

a) If you are male: 5 or more drinks on an occasion?
_____ Number of Times
b) If you are female: 4 or more drinks on an occasion?
_____ Number of Times
c) I can't remember (not prompted)
d) Refused (not prompted)

P1_9 Have you had any problems in the past 12 months with behaviour such as overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things? What we mean is difficulties controlling the behaviour which has led to significant negative consequences for you or other people.

a) Yes
b) No
c) I don't' know (not prompted)
d) Refused (not prompted)

[IF "No", "I don't know" or "refused" skip Question 10]

P1_10 Which specific activities have you had problems with? Have you had problems with…? Check all that apply.

a) Overeating
b) Sex or pornography
c) Exercise
d) Shopping
e) Internet chat lines
f) Video or internet gaming
g) Other:_____[specified]
h) Refused (not prompted)

P1_11 In the past 30 days, have you had any serious problems with depression, anxiety, or other mental health issues?

a) Yes
b) No
c) I don't' know (not prompted)
d) Refused (not prompted)

[IF "Yes", skip Question 12]

P1_12 How about in the last 12 months?

a) Yes
b) No
c) I don't' know (not prompted)
d) Refused (not prompted)

[IF “No”, skip Question 13]

P1_13 Which problems have you experienced?
_____[specified]

P1_14 During the past 12 months, did you ever seriously consider attempting suicide?
a) Yes
b) No
c) I don’t’ know (not prompted)
d) Refused (not prompted)

P1_16 Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?
a) Yes
b) No
c) I don’t’ know (not prompted)
d) Refused (not prompted)

P1_17 How would you describe your childhood? Would you say…?
a) Very happy
b) Happy
c) Neither happy nor unhappy
d) Unhappy
e) Very unhappy
f) I don’t’ know (not prompted)
g) Refused (not prompted)

PART 2: GAMBLING PARTICIPATION

(33 items)

Note: All respondents were presented with Part 2

P2_1 In the past 12 months, how often have you purchased National Lottery tickets? Would you say…?
a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF “not at all”, Skip Q2]

P2_2 Roughly how much money do you spend on National Lottery tickets in a typical month?
Spend means how much you are ahead (+€) or behind (–€), or your net win or loss in an average month.
_____€

P2_3 In the past 12 months, how often have you purchased scratchcards? Would you say…?
a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF “not at all”, Skip Q4]

P2_4 Roughly how much money do you spend on scratchcards in a typical month?
_____€

P2_5 In the past 12 months, how often have you purchased lottery games such as Joker, Lotto, or Proto? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q6]

P2_6 Roughly how much money do you spend on Joker, Lotto, or Proto in a typical month?

_____€

P2_7 In the past 12 months, how often have you gambled on instant lottery games (e.g., Kino, Super 3, or Extra 5)? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q8]

P2_8 Roughly how much money do you spend on instant lottery games (e.g., Kino, Super 3, or Extra 5) in a typical month?

_____€

P2_9 In the past 12 months, how often have you gambled on bingo? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q10]

P2_10 Roughly how much money do you spend on bingo in a typical month?

_____€

P2_11 In the past 12 months, how often have you bet on horse racing? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q12]

P2_12 Roughly how much money do you spend on horse racing in a typical month?

_____€

P2_13 In the past 12 months, how often have you engaged in private betting with friends, family or colleagues (e.g., betting on card games, sports matches, etc.)? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q14 and Q15]

P2_14 Roughly how much money do you spend on private betting with friends, family or colleagues in a typical month?

_____€

P2_15 Did you engage in private betting with friends, family or colleagues (e.g., betting on card games, sports matches, etc.)…

a) In person
b) Online
c) Both
d) I don't' know (not prompted)
e) Refused (not prompted)

P2_16 In the past 12 months, how often have you engaged in sports betting or betting on other events? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q17 and Q18]

P2_17 Roughly how much money do you spend on sports betting or betting on other events in a typical month?

_____€

P2_18 Did you engage in sports betting or betting on other events…

a) In person
b) Online
c) Both
d) I don't' know (not prompted)
e) Refused (not prompted)

P2_19 In the past 12 months, how often have you bet money on virtual sports? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q20]

P2_20 Roughly how much money do you spend betting on virtual sports in a typical month?
_____€

P2_21 In the past 12 months, how often have you bet with a betting exchange?
A betting exchange is a marketplace that allows people to place bets against each other on the outcomes of events, such as sports matches. Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q22 and Q23]

P2_22 Roughly how much money do you spend on exchange betting in a typical month?
_____€

P2_23 Did you engage in exchange betting…

a) In person
b) Online
c) Both
d) I don't' know (not prompted)
e) Refused (not prompted)

P2_24 In the past 12 months, how often have you gambled on casino games (e.g., blackjack, poker)? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q25 and Q26]

P2_25 Roughly how much money do you spend on casino games (e.g., blackjack, poker) in a typical month?
_____€

P2_26 Did you gamble on casino games (e.g., blackjack, poker)…

a) In person
b) Online
c) Both
d) I don't' know (not prompted)
e) Refused (not prompted)

P2_27 In the past 12 months, how often have you gambled on fruit/slot machines? Would you say…?

a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all

[IF "not at all", Skip Q28 and Q29]

P2_28 Roughly how much money do you spend on fruit/slot machines in a typical month?
_____€

P2_29 Did you gamble on fruit/slot machines...
a) In person
b) Online
c) Both
d) I don't' know (not prompted)
e) Refused (not prompted)

P2_30 In the past 12 months, have you engaged in any other gambling activities? If so, please specify.
a) Yes: (specify) _____
b) No
[IF "No", Skip Q31, Q32, Q33]

P2_31 In the past 12 months, how often have you engaged in these other gambling activities? Would you say...?
a) 4 or more times a week
b) 2-3 times a week
c) Once a week
d) 2-3 times a month
e) Once a month
f) Less than once a month
g) Not at all
[IF "not at all", Skip Q32 and Q33]

P2_32 Roughly how much money do you spend on these other gambling activities in a typical month?
_____€

P2_33 Did you engage in these other gambling activities...
a) In person
b) Online
c) Both
d) I don't' know (not prompted)
e) Refused (not prompted)

PART 3: STANDARD MEASURE OF PROBLEM GAMBLING

(24 items)

Note: Only respondents who indicated gambling on any gambling types in Part 2 were presented with Part 3, with the exception of question P3_17, P3_18, and P3_20 which were presented to all respondents.

Some of the next questions may not apply to you, but please try to be as accurate as possible.
THINKING ABOUT THE LAST 12 MONTHS...

P3_1 Have you bet more than you could really afford to lose? Would you say...
a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_2 Still thinking about the last 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_3 When you gambled, did you go back another day to try to win back the money you lost?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_4 Have you borrowed money or sold anything to get money to gamble?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_5 Have you felt that you might have a problem with gambling?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_6 Has gambling caused you any health problems, including stress or anxiety?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_7 Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_8 Has your gambling caused any financial problems for you or your household?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_9 Have you felt guilty about the way you gamble or what happens when you gamble?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_10 Have you lied to family members or others to hide your gambling?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_11 Have you bet or spent more money than you wanted to on gambling?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

P3_12 Have you wanted to stop betting money or gambling, but didn't think you could?

a) never
b) sometimes
c) most of the time
d) almost always
e) don't know (not prompted)
f) refused (not prompted)

"Next, we explore some of your beliefs about gambling, as well as any early experiences you have had with gambling or betting money. For each of the following, please tell me if you strongly agree, agree, disagree, or strongly disagree?"

P3_13 After losing many times in a row, you are more likely to win. Do you…

a) strongly agree
b) agree
c) disagree
d) strongly disagree
e) don't know (not prompted)
f) refused (not prompted)

P3_14 You could win more if you used a certain system or strategy.
a) strongly agree
b) agree
c) disagree
d) strongly disagree
e) don't know (not prompted)
g) refused (not prompted)

P3_15 Do you remember a big win when you first started gambling?
a) yes
b) no
c) don't know (not prompted)
d) refused (not prompted)

P3_16 Do you remember a big LOSS when you first started gambling?
a) yes
b) no
c) don't know (not prompted)
d) refused (not prompted)

P3_17 Has anyone in your family EVER had a gambling problem?
a) yes
b) no
c) don't know (not prompted)
d) refused (not prompted)
[Note: All respondents should be asked this question]

P3_18 Has anyone in your family EVER had an alcohol or drug problem?
a) yes
b) no
c) don't know (not prompted)
d) refused (not prompted)
[Note: All respondents should be asked this question]

P3_19 IN THE LAST 12 MONTHS, have you used alcohol or drugs while gambling?
a) yes
b) no
c) don't know (not prompted)
d) refused (not prompted)

P3_20 Have you felt you might have an alcohol or drug problem?
a) yes
b) no
c) don't know (not prompted)
d) refused (not prompted)
[Note: All respondents should be asked this question]

P3_24 How old were you when you first gambled?
a) _____ [age specified]
b) -1 = I have never played (not prompted)
c) -2 = I don't remember (not prompted)
d) -3 = refused to answer (not prompted)

P3_25 Have you ever tried to stop, or cut down your gambling?

a) Yes
b) No
c) I don't know (not prompted)
d) Refused (not prompted)

[IF "No" skip question 26]

P3_26 Have you ever sought help from any of the following people about a gambling problem?
Please select ALL that apply.

a) Family or Friend
b) GP/Nurse/Psychologist or other health care professional
c) Gambling help group / service / advisor or counsellor
d) Credit/debt advisor
e) Faith/religious leader
f) Employer
g) Other counselling/ psychologist/ psychiatrist service
h) Someone else
i) Have not spoken to anyone

P3_27 In the past 12 months, have you seriously thought about or attempted suicide as a result of your gambling?

a) yes
b) no
c) don't know
d) refused

PART 4: GAMBLING MOTIVATIONS

(1 item)

Note: Only respondents who indicated gambling on any gambling types in Part 2 were presented with Part 4.

P4_1 What would you say is the main reason that you gamble? Would you say…?

a) For excitement/ entertainment
b) To win money
c) To escape or distract yourself
d) To socialize with family or friends
e) To support worthy causes
f) Because it makes you feel good about yourself
g) Other
h) Don't know (not prompted)
i) Refused (not prompted)

PART 5: DEMOGRAPHICS

(12 items)

Note: All respondents answer Part 5

P5_1 Are you male or female?

a) Male
b) Female
c) Other

P5_2 In what year were you born?

a) _____ [specified]

P5_3 In which province do you live?

a) Nicosia
b) Limassol
c) Larnaca
d) Ammochostos
e) Paphos

P5_4 In which area do you live?

a) Urban
b) Rural

P5_5 At present are you…?

a) Married
b) Living with your partner
c) Separated, but still legally married
d) Divorced
e) Widowed
f) Never been married

P5_6 How many children under 18 years old live in your household?

a) _____ [specified]

P5_7 What is the highest degree or level of school you have completed?

a) Primary education
b) Lower secondary education (Gymnasium)
c) Upper secondary education (Lyceum)
d) Post-secondary education (vocational school, college, diploma)
e) Undergraduate education (university degree)
f) Postgraduate education (master, PhD)
g) Other _____[specified]
h) Do not know
i) Do not wish to answer

P5_8_1 Are you currently…?

a) full-time employment
b) part –time employment
c) unemployed
d) school student
e) university student
f) housekeeping
g) soldier (military service)
h) income recipient
i) unable to work due to illness/disability
j) Other _____ [specified]
k) Do not wish to answer
l) Retired

P5_10 Is your approximate annual household income from all sources...

a) Less than €15,000
b) €15,000 - €19,500
c) €19,501 - €24,000
d) €24,001 - €28,000
e) €28,001 - €36,300
f) €36,301 - €50,000
g) €50,001 - €60,000
h) €60,001 - €70,000
i) €70,000 or more
j) I do not know (not prompted)
k) I do not wish to answer (not prompted)

P5_11 What do you estimate your current debt to be? Please include mortgages, credit cards, loans, car payments, etc.

a) €0 (no debt)
b) Less than €10,000
c) €10,000 - €19,999
d) €20,000 - €39,999
e) €40,000 - €59,999
f) €60,000 - €79,999
g) €80,000 - €99,999
h) €100,000 - €119,999
i) €120,000 - €139,999
j) €140,000 - €159,999
k) €160,000 - €179,999
l) €180,000 - €199,999
m) €200,000 - €299,999
n) €300,000 - €399,999
o) €400,000 - €499,999
p) €500,000 or more
q) I do not know (not prompted)
r) I do not wish to answer (not prompted)

P5_12 Were you born in Cyprus?

a) Yes
b) No

P5_13 Which one or more of the following would you say is your race? Check all that apply.

a) Greek Cypriot
b) Armenian
c) Maronite
d) Latin
e) Turkish Cypriot
f) Greek
g) EU-Citizen
h) Non-EU Citizen
i) Other _____ [specified]

Appendix B: Telephone Interviewing Procedure

Random-digit dialing was used to contact potential respondents. Candidates were selected through the process of randomly selecting numbers from the following telephone directories: Cyta, Cablenet, EPIC, and Primetel for fixed lines, and CytaMobile – Vodafone (subsidiary of Cyta), Cablenet Mobile, EPIC and Primetel Mobile for mobile lines. These directories represent all companies that provide fixed and mobile telephone lines in Cyprus. Approximately 30% of interviews were conducted using land-based telephone lines, and approximately 70% were conducted using mobile telephone-based numbers.

SELECTION OF RESPONDENTS

The experienced staff of the IMR call center called the numbers generated. In the case of mobile phone numbers, researchers introduced themselves and informed the potential respondent about the objectives and the process of the research, as well as the importance of their participation in the research. In the case that an individual refused to participate, the researcher noted his / her demographics for the purpose of calculating the response rate to the study and proceeded to replace the individual in the sample. In the case that the candidate consented to participate in the study, the researcher proceeded to conduct the telephone interview.

In the case of land-based telephone lines, the "most recent birthday method" was followed to ensure the random selection of a specific respondent within the household. The interviewer noted the number of all permanent residents of the household aged 18 and over and when there was more than one resident within this age group, the interviewer asked to speak to the resident of the household who had his / her birthday most recently (retrospectively). If the selected person refused to participate, the interviewer noted this in his / her call log. If the selected person was absent, the interviewer phoned back at another time. In cases where the interviewer phoned the same household three (3) times, and was still unable to interview the selected candidate, then the selected candidate was replaced. Only one person could be selected for a telephone interview per household. This simple method is widely used to avoid the discriminatory choice of the household member who is most likely to answer the phone.

Once the participating candidate had been identified within the household, the interviewer informed him / her about the objectives and process of the research, as well as the importance of his / her participation in the research. In case the individual refused to participate, the interviewer noted his / her demographics for the purposes of calculating the response rate to the survey and proceeded to replace the household. In case of consent of the person to participate in the research, the interviewer conducted the telephone interview.

In the case of both mobile and fixed telephone lines, up to three (3) communication attempts were made on different days and hours, until communication with the candidate household was achieved. In cases where the communication was not possible after three telephone attempts, then the specific household / individual was considered invalid and was replaced by the next household / individual on the list.

The sampling method above ensured the randomness and representation of the sample based on the characteristics of age, gender, region, and area of residence (urban vs. rural).

Appendix C: Procedures for Creating Weights Objective

Weighting is a statistical procedure that adjusts the dataset so that the survey sample more accurately represents the population from which it is drawn based on key variables.

We created weights to ensure that the distribution of the survey sample accurately reflected the population of Cyprus on the key characteristics of age, sex, ethnicity, and education. We used population data from the 2011 Cyprus population census provided by the Cyprus Statistical Service CYSTAT in order to create the weights.

PROCEDURES

There are two types of weighting procedures: expansion weights (_xwgt) and relative weights (_rwgt). The expansion weights reflect the actual number and distribution of specific groups in the population and relative weights adjust the number of respondents to the actual number of individuals in the sample while maintaining the relative distribution of subgroups within the population. We report relative weights throughout this report.

To create the weights, we performed the following steps:

1. Creating weights to adjust for age (age_rwgt);
2. Creating weights to adjust for sex (sex_rwgt);
3. Creating weights to adjust for ethnicity (eth_xwgt and eth_rwgt);
4. Creating weights to adjust for education (edu_xwgt and edu_rwgt);
5. Combining weights to adjust for disproportionate sampling by age, sex, ethnicity, and education using raking based on cross-classified pairs of the variables age, sex, ethnicity, and education;

Trimming the weights by setting the minimum weight to be the average weight divided by 8, and the maximum weight to be the average weight multiplied by 8.

See further details for each step below.

Steps 1 through 4: Creating weights for age, sex, ethnicity, and education.

Relative weights (sex_rwgt, age_rwgt, eth_rwgt and edu_rwgt) were created to adjust for the distribution of age, sex, ethnicity and education based on the ratio of the percentage of males and females, four age groups, four ethnicity groups, and six education groups in the census population to that of the respondents in the survey sample. The expansion weights (sex_xwgt, age_xwgt, eth_xwgt and edu_xwgt) were calculated by sex_rwgt, age_rwgt, eth_rwgt and edu_rwgt by multiplying 649542/2949 (census population/survey sample size) that reflect the actual population.

Step 5: Weights for combined age, sex, ethnicity, and education

The weights for combined age, sex, ethnicity, and education were calculated based on age_rwgt, sex_rwgt, eth_rwgt and edurwgt, the product of age_rwgt, sex_rwgt, eth_rwgt and edurwgt was used to rescale the weights to reflect the actual sample size (rwgt_final) and the actual population size (xwgt_final).

Step 6: Trimming weights

Weighting procedures can lead to high variation in the weight assigned to different respondents, which can result in a relatively small subset of respondents having a disproportionate influence on the outcomes if these respondents were underrepresented in the survey sample. Thus, we trimmed the survey weights to ensure no respondents were assigned an unreasonably small or large survey weight. Following the methods of Volberg et al.'s (2017) *Gambling and problem gambling in Massachusetts: Results of a baseline population survey* we employed a minimum weight of 1/8th the average weight and a maximum weight of 8 times the average weight.

Specifically, the rwgt_final and xwgt_final were trimmed by setting the minimum weight to be the average weight divided by 8, and the maximum weight to be the average weight multiplied by 8 to create two trimmed weights: rwgt_trim_final and xwgt_trim_final.

Appendix D: Unweighted and weighted sample demographic characteristics compared to the population of Cyprus

Characteristic		Unweighted survey[i]		Weighted survey[ii]		Cypriot population (2011 census)[iii]	
		N	%	N	%	N	%
Age	18-34 years old	914	31.0	694	23.5	210 021	32.3
	35-49 years old	819	27.8	786	26.6	178 830	27.5
	50-64 years old	773	26.2	684	23.2	148 924	22.9
	65+ years old	443	15.0%	786	26.6	111 767	17.2
	Total	2 949	100.0	2 949	100.0	649 542	100
Sex	Male	1 488	50.5	1 379	46.7	310 910	47.9
	Female	1 461	49.5	1 570	53.3	338 632	52.1
	Other	0	0.0	Not applicable		Not asked	
	Total	2 949	100.0	2 949	100.0	649 542	100.0
District	Nicosia	1 208	41.0	1 188	40.3	256 140	39.4
	Limassol	833	28.2	808	27.4	182 377	28.1
	Larnaca	487	16.5	519	17.6	108 341	16.7
	Ammochostos/Famagusta	168	5.7	181	6.1	34 572	5.3
	Paphos	253	8.6	253	8.6	68 112	10.5
		2 949	100.0	2 949	100.0	649 542	100.0
Area of Residence	Urban	1 976	67.0	1 912	64.8	441 056	67.9
	Rural	973	33.0	1 037	35.2	208 486	32.1
		2 949	100.0	2 949	100.0	649 542	100.0
Ethnicity	Greek Cypriot	2 552	86.5	2 306	78.2	496 354	76.4
	Other Cypriot[ixi]	67	2.3	24	0.8	6 332	1.0
	Non-Cypriot citizen[x]	324	11.0	598	20.3	144 835	22.3
	Other/Not Stated[xi]	6	0.2	21	0.7	2 021	0.3
	Total	2 949	100.0	2 949	100.0	649 542	100.0
Education	Up to primary education[xiii]	184	6.2	600	20.4	132 268	20.3
	Lower secondary education	194	6.6	268	9.1	57 120	8.8
	Upper secondary; Post-secondary; Tertiary non-university[xiv]	1 357	46.0	1 368	46.4	304 793	46.9
	Undergraduate education (university)	827	28.0	473	16.0	103 301	15.9
	Postgraduate education (masters, PhD)[xv]	380	12.9	174	5.9	39 491	6.1
	Do not know/Not stated	7	0.2	65	2.2	12 569	1.9
	Total	2 949	100.0	2 949	100.0	649 542	100.0

(i) Unweighted (N. %) refers to the percentage and total number of respondents who fall into this category.
(ii) Weighted (N, %) refers to the percentage and total number of respondents who fall into this category weighted to the population of Cyprus based on age, sex, ethnicity, and education.
(iii) Cypriot population data were taken from the 2011 census, provided by the Cyprus Statistical Service CYSTAT.
(iv) Totals for "Age" from the survey include individuals ages 18+, however, the Cyprus 2011 population census data shown here includes individuals ages 20+ years old. The data are reported this way because the population census data provided by the Cyprus Statistical Service CYSTAT pools individuals ages 15-19 in one category (see sheet C1a in the Population Census Data, 2011). Therefore, it is not possible to separate individuals 18-19 from those 15-17 in the census data to create an exact alignment of categories between the census and the survey data. Given the relatively low proportion of 18 to 19-

year-olds in the survey data (1.7% of the total sample), we have chosen to compare individuals in the survey ages 18-34, to the census data for individuals ages 20-34.
(v) Totals for "Sex" from the Cyprus population census data include individuals ages 20+ years old (see sheet A1a in the Population Census Data, 2011, provided by the Cyprus Statistical Service CYSTAT). In contrast, totals for 'sex' from the survey data include individuals ages 18+.
(vi) Totals for "District" from the Cyprus population census data refer to individuals of ages 20+ years old (see sheet A1a through A1f in the Population Census Data, 2011, provided by the Cyprus Statistical Service CYSTAT). In contrast, totals for 'district' from the survey data include individuals ages 18+.
(vii) Totals for "Area of Residence" from the Cyprus population census data includes individuals of all ages (see sheet B5 in the Population Census Data, 2011, provided by the Cyprus Statistical Service CYSTAT). In contrast, totals for 'area of residence' from the survey data only include individuals ages 18+, as younger individuals were not included in the survey.
(viii) Totals for "Ethnicity" from the population census data include individuals ages 20+, while totals for the survey data include individuals ages 18+ (see sheet F1 in the Population Census Data, 2011, provided by the Cyprus Statistical Service CYSTAT for the breakdown of Cypriot citizens by ethnic/religious group, and sheet C1a for the breakdown of non-Cypriot citizens of the Cyprus population).
(ix) Note: the "Other Cypriot" category for the survey includes response options: "Armenian", "Maronite", "Latin", and "Turkish Cypriot", although 0% of respondents identified as "Turkish Cypriots" in the survey. In contrast, the "Other Cypriot" category for the census population data includes response options: "Armenian", "Maronite", "Latin", "Turkish Cypriot", and "Not stated Cypriot citizen".
(x) Note: the "Non-Cypriot citizen" category includes survey categories for "Greek", "EU citizen" and "Non-EU citizen", and aligns with the data from the 2011 census.
(xi) Note: the "Other/Not stated" category includes 2011 census data for individuals whose ethnicity and citizenship was "Not stated", while for the survey data it includes respondents who selected the response option "Other".
(xii) Totals for "Education" from the population census data refer to individuals ages 20+, living in the Government-controlled area of Cyprus (see sheet B8 in the Population Census Data, 2011, provided by the Cyprus Statistical Service CYSTAT). In contrast, survey data include individuals ages 18+ living in the Government-controlled area of Cyprus.
(xiii) Note: the "Up to primary education" category includes survey respondents who indicated having a primary education. For census respondents, it includes those indicating 'primary education', 'has not completed primary' and 'never attended school'. We grouped these together into the "up to primary education" category as our survey did not include equivalent options.
(xiv) Note: the "'Upper secondary, post-secondary, tertiary non-university" category includes survey responses "Upper secondary education (Lyceum)" and "Post-secondary education (vocational school, college, diploma)". For census data it includes "Upper Secondary (Lyceum/ Technical/Vocational)", "Post-secondary non-tertiary", and "Tertiary level (non-university)".
(xv) Note: the "Postgraduate education (masters, PhD)" category corresponds directly to a survey category, and includes the census categories "Tertiary level – postgraduate degree" and "Tertiary level – Doctorate".

Appendix E: Completion Rates by Questionnaire Item

The table below shows completion rates for each question. The unweighted *n* represents the number of respondents who were asked each question. Note, questions that were presented to all respondents have an *n* of 2 949, while questions that were presented to a subset of respondents (based on the skip pattern of the questions) have smaller *n*s.

For each question, the interviewers also noted if respondents said they did not know the answer or if they refused to respond to the question. These response options were not prompted, but were recorded when respondents did not answer the question.

For some questions, there were also apparent data entry errors or skip issues, where responses were not recorded for certain questions. These are also noted for each question.

Finally, the percent complete column indicates the percentage of complete responses for each question based on unweighted data.

Questionnaire item	Unweighted n	# "do not know" or refused	# data entry or skip issue	Percent complete
P1_1 Which of the following is your preferred recreational activity?	2 949	0	0	100.0
P1_2 Over the past 12 months, would you say that in general your health has been?	2 949	4	0	99.9
P1_3 In the past 12 months, how would you rate your overall level of stress?	2 949	2	0	99.9
P1_4 Still thinking about the last 12 months have you been under a doctor's care because of physical or emotional problems brought on by stress?	2 949	0	0	100.0
P1_5 'In the past 12 months, how would you rate your overall level of happiness?'	2 949	2	0	99.9
P1_6 Do you smoke any tobacco products (excluding electronic cigarettes or similar electronic devices)?	2 949	1	0	100.0
P1_7 During the past 12 months, how many days per month did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage or liquor?	2 949	0	2	99.9
P1_8B Considering all types of alcoholic beverages, how many times during the past 30 days did you have: • if you are male, 5 or more drinks on a single occasion? • If you are female, 4 or more drinks on a single occasion?,	2041	5	0	99.8
P1_9 Have you had any problems in the past 12 months with behavior such as overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things?	2 949	6	0	99.8
P1_10_1 Which specific activities have you had problems with? Have you had problems with…? Check all that apply?	291	4	0	98.6
P1_11 In the past 30 days, have you had any serious problems with depression, anxiety, or other mental health issues?	2 949	0	0	100.0
P1_12 How about in the last 12 months?	2 598	1	0	100.0

Questionnaire item	Unweighted n	# "do not know" or refused	# data entry or skip issue	Percent complete
P1_13 Which problems have you experienced?	591	21	3	95.9
P1_14 During the past 11 months, did you ever seriously consider attempting suicide?	2 949	1	0	100.0
P1_16 Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone??	2 949	0	0	100.0
P1_17 How would you describe your childhood?	2 949	11	0	99.6
P2_1 In the last 12 months, how often have you purchased National Lottery tickets? Would you say…?	2 949	0	0	100.0
P2_2 Roughly how much money do you spend on National Lottery tickets in a typical month? Spend means how much you are ahead (+€) or behind (–€), or your net win or loss in an average month.(€)?	337	13	0	96.1
P2_3 In the past 12 months, how often have you purchased scratchcards? Would you say…?	2 949	0	0	100.0
P2_4 Roughly how much money do you spend on scratchcards in a typical month(€)?	926	21	0	97.7
P2_5 In the past 12 months, how often have you purchased lottery games such as Joker, Lotto, or Proto? Would you say…?	2 949	0	0	100.0
P2_6 Roughly how much money do you spend on Joker, Lotto, or Proto in a typical month(€)?	1 096	15	0	98.6
P2_7 In the past 12 months, how often have you gambled on instant lottery games (e.g., Kino, Super 3, or Extra 5)? Would you say…?	2 949	0	1	100.0
P2_8 Roughly how much money do you spend on instant lottery games (e.g., Kino, Super 3, or Extra 5) in a typical month(€)?	237	4	0	98.3
P2_9 In the past 12 months, how often have you gambled on bingo? Would you say…?	2 949	0	0	100.0
P2_10 Roughly how much money do you spend on bingo in a typical month(€)?	255	5	0	98.0
P2_11 In the past 12 months, how often have you bet on horse racing? Would you say…?	2 949	0	0	100.0
P2_12 Roughly how much money do you spend on horse racing in a typical month(€)?	50	1	0	98.0
P2_13 In the past 12 months, how often have you engaged in private betting with friends, family or colleagues (e.g., betting on card games, sports matches, etc.)? Would you say…?	2 949	0	0	100.0
P2_14 Roughly how much money do you spend on private betting with friends, family or colleagues in a typical month(€)?	124	1	0	99.2
P2_15 Did you engage in private betting with friends, family or colleagues (e.g., betting on card games, sports matches, etc.)…?	124	0	0	100.0
P2_16 In the past 12 months, how often have you engaged in sports betting or betting on other events? Would you say…?	2 949	0	0	100.0
P2_17 Roughly how much money do you spend on sports betting or betting on other events in a typical month(€)?	360	8	0	97.8

Questionnaire item	Unweighted n	# "do not know" or refused	# data entry or skip issue	Percent complete
P2_18 Did you engage in sports betting or betting on other events…?	360	0	5	98.6
P2_19 In the past 12 months, how often have you bet money on virtual sports? Would you say…?	2 949	0	0	100.0
P2_20 Roughly how much money do you spend betting on virtual sports in a typical month(€)?	32	1	0	96.9
P2_21 In the past 12 months, how often have you bet with a betting exchange (definition provided)? Would you say…?	2 949	0	0	100.0
P2_22 Roughly how much money do you spend on exchange betting in a typical month(€)?	24	2	0	91.7
P2_23 Did you engage in exchange betting…?	24	0	0	100.0
P2_24 In the past 12 months, how often have you gambled on casino games (e.g., blackjack, poker)? Would you say…?	2 949	0	0	100.0
P2_25 Roughly how much money do you spend on casino games (e.g., blackjack, poker) in a typical month(€)?	144	7	1	94.4
P2_26 Did you gamble on casino games (e.g., blackjack, poker)…?	144	0	1	99.3
P2_27 In the past 12 months, how often have you gambled on fruit/slot machines? Would you say…?	2 949	0	0	100.0
P2_28 Roughly how much money do you spend on fruit/slot machines in a typical month(€)?	125	5	0	96.0
P2_29 Did you gamble on fruit/slot machines…?	125	0	2	98.4
P2_30 In the past 12 months, have you engaged in any other gambling activities? If so, please specify.	2 949	0	0	100.0
P2_31 In the past 12 months, how often have you engaged in these other gambling activities? Would you say…?	10	0	3	70.0
P2_32 Roughly how much money do you spend on these other gambling activities in a typical month(€)?	10	0	0	100.0
P2_33 Did you engage in these other gambling activities…?	10	0	0	100.0
P3_1 Have you bet more than you could really afford to lose? Would you say…	1 750	3	0	99.8
P3_2 Have you needed to gamble with larger amounts of money to get the same feeling of excitement?	1 750	0	0	100.0
P3_3 When you gambled, did you go back another day to try to win back the money you lost?	1 750	0	0	100.0
P3_4 Have you borrowed money or sold anything to get money to gamble?	1 750	0	0	100.0
P3_5 Have you felt that you might have a problem with gambling?	1 750	1	0	99.9
P3_6 Has gambling caused you any health problems, including stress or anxiety?	1 750	0	0	100.0
P3_7 Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?	1 750	0	0	100.0

Questionnaire item	Unweighted n	# “do not know” or refused	# data entry or skip issue	Percent complete
P3_8 Has your gambling caused any financial problems for you or your household?	1 750	0	0	100.0
P3_9 Have you felt guilty about the way you gamble or what happens when you gamble?	1 750	0	0	100.0
P3_10 Have you lied to family members or others to hide your gambling?	1 750	0	0	100.0
P3_11 Have you bet or spent more money than you wanted on gambling?	1 750	3	0	99.8
P3_12 Have you wanted to stop betting money or gambling, but didn’t think you could?	1 750	3	0	99.8
P3_13 After losing many times in a row, you are more likely to win. Do you…?	1 750	84	0	95.2
P3_14 You could win more if you used a certain system or strategy.	1 750	157	0	91.0
P3_15 Do you remember a big win when you first started gambling?	1 750	2	0	99.9
P3_16 Do you remember a big LOSS when you first started gambling?	1 750	1	0	99.9
P3_17 Has anyone in your family EVER had a gambling problem?	2 949	5	0	99.8
P3_18 Has anyone in your family EVER had an alcohol or drug problem?	2 949	3	0	99.9
P3_19 IN THE LAST 12 MONTHS, have you used alcohol or drugs while gambling?	1 750	0	0	100.0
P3_20 Have you felt you might have an alcohol or drug problem?	2 949	1	0	100.0
P3_24 How old were you when you first gambled?	1 750	52	0	97.0
P3_25 Have you ever tried to stop or cut down your gambling?	1 750	0	0	100.0
P3_26_1 Have you ever sought help from any of the following people about a gambling problem (select all that apply)?	174	0	0	100.0
P3_27 In the past 12 months, have you seriously thought about or attempted suicide as a result of your gambling?	1 750	6	0	99.7
P4_1 What would you say is the main reason that you gamble? Would you say…?	1 750	37	0	97.9
P5_1 Are you male or female?	2 949	0	0	100.0
P5_2 In what year were you born?	2 949	0	0	100.0
P5_3 In which province do you live?	2 949	0	0	100.0
P5_4 In which area do you live? [urban vs. rural]	2 949	0	0	100.0
P5_5 At present are you…? [marital status]	2 949	0	0	100.0
P5_6 How many children under 18 years old live in your household?	2 949	0	0	100.0
P5_7 What is the highest degree or level of school you have completed?	2 949	7	0	99.8

Questionnaire item	Unweighted n	# “do not know” or refused	# data entry or skip issue	Percent complete
P5_8_1 Your employment status is currently…?	2 949	16	0	99.5
P5_10 What is your approximate annual household income from all sources?	2 949	315	0	89.3
P5_11 What do you estimate your current debt to be? Please include mortgages, credit cards, loans, car payments, etc.	2 949	180	0	93.9
P5_12 Were you born in Cyprus?	2 949	0	0	100.0
P5_13 What is your ethnic/religious group? Select all that apply?	2 949	0	0	100.0

Appendix F: A Systematic Review of Problem Gambling Prevalence Studies Since 2019

A Systematic Search of Problem Gambling Prevalence Studies Conducted since 2019

Youssef Allami, Ph.D.
Psychologist

President, ALLY Addiction Consulting

March 16th, 2023

Problem Gambling Prevalence Studies Conducted since 2019

Search strategy

A systematic search was conducted on March 6th, 2023. PubMED and PsycINFO were searched using the following phrase:

(gambl* OR betting OR wager*) AND ((longitudinal OR prospective OR cohort) OR (*national OR jurisdiction* OR prevalence OR survey OR study))

Results were limited to studies published between January 1st, 2019 and March 6th, 2021.

Online gambling study repositories (i.e., Alberta Gambling Research Institute and Gambling Research Exchange Ontario) were also searched, and reference lists from studies identified were checked to identify relevant studies. Inclusion and exclusion criteria followed what was used by Allami et al.[3]

Search results

Studies identified through the present that were already included in the Allami et al. meta-analysis were excluded. A total of 509 studies were identified. From those, 10 prevalence studies were included in the present summary (see Table 1 for reference list of included studies). Figure 1 presents a PRISMA flow diagram, including reasons for exclusion, is presented on. Although many studies were published after January 1st, 2019, only those reporting prevalence rates for 2019 or later are included.

Summary of findings

From the 10 studies retained, two used the South Oaks Gambling Screen (SOGS) and eight used the Problem Gambling Severity Index (PGSI). Three were conducted in Scandinavian countries (Finland, Denmark, and Sweden), three in Australia (one national, two state-wide), one in Japan, one in British Columbia (Canada), one in France, and one in the Republic of Ireland.

Past year gambling participation ranged from 34.5% (Japan) to 85% (British Columbia).

Problem gambling rates

Two studies assessed PG prevalence rates as a percentage of past year gamblers (Sweden and Finland) and eight assessed PG prevalence rates as a percentage of the general population.

Studies using the SOGS found PG rates between 3.7%-4.3%. However, each study used a different threshold to determine PG (3+ vs 5+).

For the PGSI, PG rates for people scoring 8+ varied from 0.3% (Republic of Ireland) to 7% (British Columbia). Moderate PG (scores between 3-7) prevalence rates ranged from 0.9% (Republic of Ireland) to 9.1% (Sweden).

Impact of COVID

Studies conducted in 2019 or 2019-20 using the PGSI had PG 3+ rates (i.e., moderate-risk and problem gamblers) between 1.2-5.2%. On the other hand, studies conducted in 2020 and 2021 had PG 3+ rates between 8.7-14.8%. It is unclear to what extent this jump is due to COVID restrictions, online gambling, or changes in survey methodology.

[3] Allami, Y., Hodgins, D. C., Young, M., Brunelle, N., Currie, S., Dufour, M., ... & Nadeau, L. (2021). A meta-analysis of problem gambling risk factors in the general adult population. *Addiction*, *116*(11), 2968-2977.

Considerations

It should be noted that the study conducted in British Columbia (2020) had extremely high PG rates compared to other jurisdictions (7% for PGSI 8+ and 8% for PGSI 3-7), even though the report authors claim to have weighted their sample to be representative of the general population. Although the report had a focus on online gambling, these PG rates are still based on all types of gambling. It is possible that the framing of the study may have led to an oversampling of people with PG.

Table 1. Reference List of Included Studies

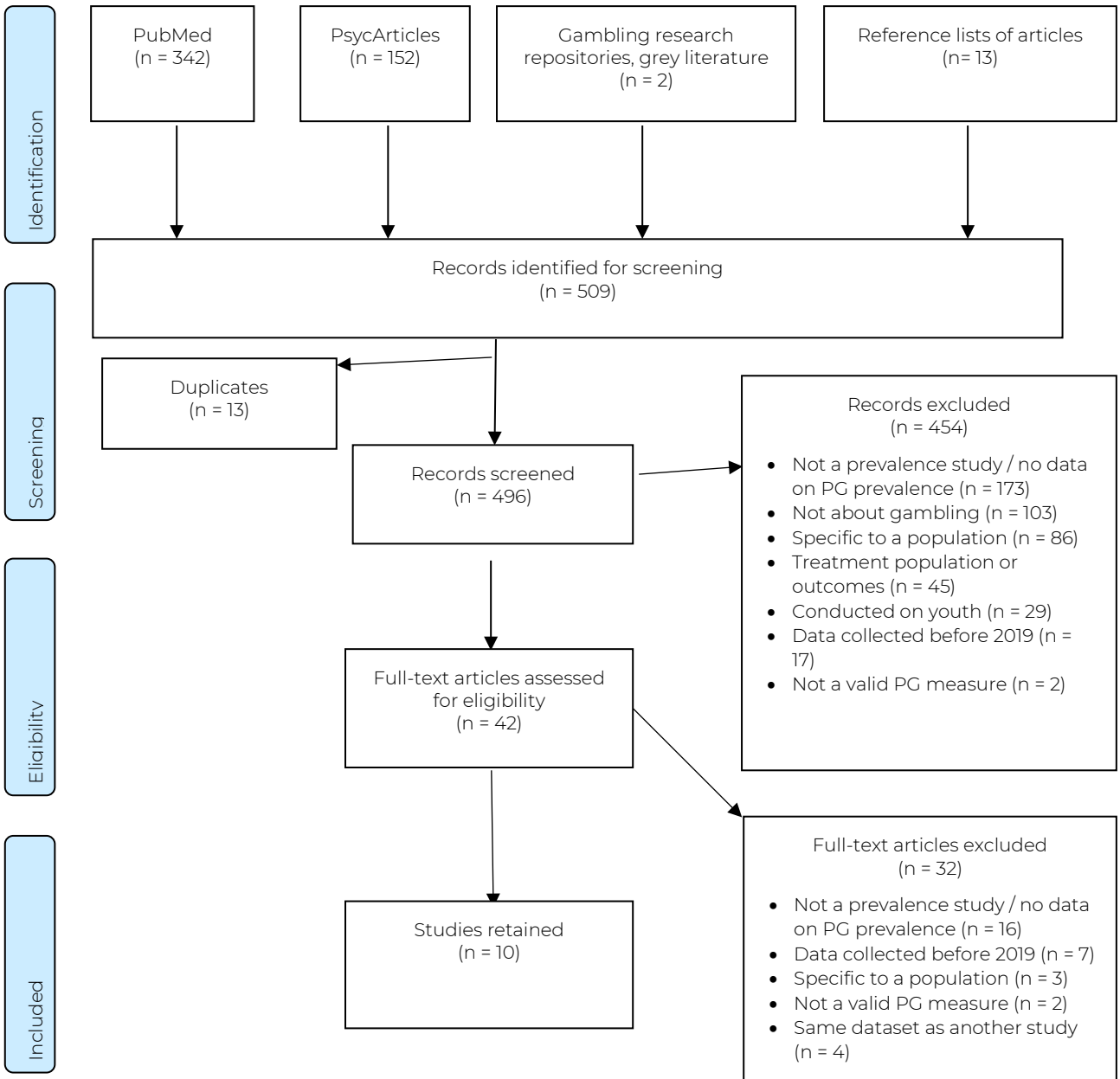
Year	Jurisdiction	Citation
2018-19	Victoria (Australia)	Rockloff, M, Browne, M, Hing, N, Thorne, H, Russell, A, Greer, N, Tran, K, Brook, K & Sproston, K (2020). Victorian population gambling and health study 2018–2019, Victorian Responsible Gambling Foundation, Melbourne. https://responsiblegambling.vic.gov.au/documents/759/Population_study_2018_2019_PUBLISHED_REPORT_March_2020.pdf
2019	Finland	Lind, K., Marionneau, V., Järvinen-Tassopoulos, J., & Salonen, A. H. (2022). Socio-Demographics, Gambling Participation, Gambling Settings, and Addictive Behaviors Associated with Gambling Modes: A Population-Based Study. Journal of gambling studies, 38(4), 1111–1126. https://doi.org/10.1007/s10899-021-10074-7
2019	New South Wales (Australia)	Browne, M., Rockloff, M., Hing, N., Russell, A., Boyle, C.M., & Rawat, V. (2020) NSW Gambling Survey 2019. Report prepared for NSW Responsible Gambling Fund. Revised March 2020. https://www.gambleaware.nsw.gov.au/-/media/files/nsw-gambling-survey-2019-report-final-amended-mar-2020.ashx?rev=442dc0a92d954b368f8bdf34525d539b
2019	France	Costes, J-M., Richard, J-B., Eroukmanoff, V., Le Nézet, O., & Philippon, A (2020) Les Français et les jeux d'argent et de hasard: Résultats du Baromètre de Santé publique France 2019. http://www.ofdt.fr/BDD/publications/docs/eftxjc2a6.pdf
2019-20	Australia	Hing, N., Russell, A. M. T., Browne, M., Rockloff, M., Greer, N., Rawat, V., Stevens, M., Dowling, N., Merkouris, S., King, D., Breen, H., Salonen, A., & Woo, L. (2021). The second national study of interactive gambling in Australia (2019-20). Melbourne: Gambling Research Australia. https://www.gamblingresearch.org.au/sites/default/files/2021-10/Final%20IGS%20report%202021.pdf
2019-20	Republic of Ireland	Mongan D, Millar SR, Doyle A, Chakraborty S, and Galvin B (2022) Gambling in the Republic of Ireland: Results from the 2019–20 National Drug and Alcohol Survey. Dublin: Health Research Board. https://www.drugsandalcohol.ie/34287/
2020	Japan	Hayano, S., Dong, R., Miyata, Y. et al. (2021) The study of differences by region and type of gambling on the degree of gambling addiction in Japan. Sci Rep 11, 13102. https://doi.org/10.1038/s41598-021-92137-8
2020	Denmark	Håkansson, A. (2021). Gambling and self-reported changes in gambling during COVID-19 in web survey respondents in Denmark. Heliyon, 7(7), e07506. https://www.sciencedirect.com/science/article/pii/S2405844021016091
2020	British Columbia (Canada)	Ipsos & Strategic Science (2020) British Columbia Online Problem Gambling Prevalence Study. Report prepared for the British Columbia Lottery Corporation. https://prism.ucalgary.ca/handle/1880/113694
2021	Sweden	Claesdotter-Knutsson, E., & Håkansson, A. (2021). Changes in Self-Reported Web-Based Gambling Activity During the COVID-19 Pandemic: Cross-sectional Study. JMIR serious games, 9(4), e30747. https://doi.org/10.2196/30747

Table 2. Summary of Problem Gambling Prevalence Rates

Year	Jurisdiction	Age	Sample size	PY gambling	Assessment instrument	PY PG Prevalence	Base group for PG prevalence
2018-19	Victoria (Australia)	18+	10,638	69%	PGSI	8+: 0.7%, 3-7: 2.4%	General population
2019	Finland	18-74	3,077	N/A	SOGS	3+: 3.7%	PY gamblers
2019	New South Wales (Australia)	18+	10,012	53.3%	PGSI	8+: 1.0%, 3-7: 2.8%	General population
2019	France[(i)]	18-85	10,352	45.6%	PGSI	8+ : 1.6%, 3-7 : 4.4%	General population
2019-20	Australia	18+	15,000	56.9%	PGSI	8+: 1.2%, 3-7: 3.1%	General population
2019-20	Republic of Ireland	15+	5,672	49.0%	PGSI	8+: 0.3%, 3-7: 0.9%	General population
2020	Japan	20-80	42,880	34.5%	SOGS	5+: 4.3%	General population
2020	Denmark	18+	2,012	54.6%	PGSI	8+: 5.5%, 3-7: 3.2%	General population
2020	British Columbia (Canada)	19+	4,079	85%	PGSI	8+: 7%, 3-7: 8%	General population
2021	Sweden	16+	1,501	70.9%	PGSI	8+: 3.7%; 3-7: 9.1%	PY gamblers

Note. PY: Past year, PG: Problem gambling, PGSI: Problem Gambling Severity Index, SOGS: South Oaks Gambling Screen
[(i)] Note, the study from France reports moderate-risk, and problem gambling percentages out of all gamblers, rather than out of the entire sample. As such, these estimates are higher than those reported by the other studies, which report problem gambling risk and prevalence as a percentage out of the entire sample

Figure 1. PRISMA Flow Diagram



References

Abbott, M. W. (2020). The changing epidemiology of gambling disorder and gambling-related harm: Public health implications [Review]. *Public Health*. https://doi.org/10.1016/j.puhe.2020.04.003

Allami, Y., Hodgins, D. C., Young, M., Brunelle, N., Currie, S., Dufour, M., Flores-Pajot, M. C., & Nadeau, L. (2021). A meta-analysis of problem gambling risk factors in the general adult population. *Addiction*, *116*(11), 2968-2977. https://doi.org/10.1111/add.15449

Boothby, C. A., Kim, H. S., Romanow, N. K., Hodgins, D. C., & McGrath, D. S. (2017). Assessing the role of impulsivity in smoking & non-smoking disordered gamblers [Article]. *Addict Behav*, *70*, 35-41. https://doi.org/10.1016/j.addbeh.2017.02.002

Browne, M., Rockloff, M., Hing, N., Russell, A., Boyle, C. M., & Rawat, V. (2020). *NSW Gambling Survey 2019*. https://www.gambleaware.nsw.gov.au/-/media/files/nsw-gambling-survey-2019-report-final-amended-mar-2020.ashx?rev=442dc0a92d954b368f8bdf34525d539b

Chou, K. L., & Afifi, T. O. (2011). Disordered (Pathologic or Problem) Gambling and Axis I Psychiatric Disorders: Results From the National Epidemiologic Survey on Alcohol and Related Conditions [Article]. *American Journal of Epidemiology*, *173*(11), 1289-1297. https://doi.org/10.1093/aje/kwr017

Claesdotter-Knutsson, E., & Håkansson, A. (2021). Changes in Self-Reported Web-Based Gambling Activity During the COVID-19 Pandemic: Cross-sectional Study. *JMIR Serious Games*, *9*(4), e30747. https://doi.org/10.2196/30747

Costes, J.-M., Richard, J.-B., Eroukmanoff, V., Le Nézet, O., & Philippon, A. (2020). *Les Français et les jeux d'argent et de hasard: Résultats du Baromètre de Santé publique France 2019*. http://www.ofdt.fr/BDD/publications/docs/eftxjc2a6.pdf

Currie, S. R., Hodgins, D. C., & Casey, D. M. (2013). Validity of the Problem Gambling Severity Index interpretive categories [Article]. *J Gambl Stud*, *29*(2), 311-327. https://doi.org/10.1007/s10899-012-9300-6

Custer, R. L., & Milt, H. (1985). *When luck runs out: Help for compulsive gamblers and their families*. Facts on File Publictions.

Dickerson, M. G., & O'Connor, J. (2006). *Gambling as an addictive behavior: Impaired control, harm minimisation, treatment and prevention*. Cambridge University Press.

Edson, T. C., Louderback, E. R., Tom, M. A., Philander, K. S., Slabczynski, J. M., Lee, T. G., & LaPlante, D. A. (2023). A large-scale prospective study of big wins and their relationship with future involvement and risk among actual online sports bettors [Article]. *Computers in Human Behavior*, *142*, Article 107657. https://doi.org/10.1016/j.chb.2023.107657

Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report*. C. C. f. G. Research. https://www.greo.ca/Modules/EvidenceCentre/files/Ferris%20et%20al(2001)The_Canadian_Problem_Gambling_Index.pdf

Fisher, S. E. (2000). Measuring the prevalence of sector-specific problem gambling : A study of casino patrons. *Journal of Gambling Studies*, *16*(1), 25-51. https://doi.org/10.1023/a:1009479300400

Gerstein, D., Volberg, R. A., Toce, M., Harwood, H., Johnson, R., Buie, T., Christiansen, E., Chuchro, L., Cummings, W., & Engelman, L. (1999). *Gambling impact and behavior study: report to the national gambling impact study commission*. http://www.norc.org/PDFs/publications/GIBSFinalReportApril1999.pdf

Goodie, A. S., & Fortune, E. E. (2013). Measuring cognitive distortions in pathological gambling: review and meta-analyses. *Psychology of Addictive Behaviors*, *27*(3), 730-743. https://doi.org/10.1037/a0031892

Håkansson, A. (2021). Gambling and self-reported changes in gambling during COVID-19 in web survey respondents in Denmark. *Heliyon*, *7*(7), e07506. https://doi.org/https://doi.org/10.1016/j.heliyon.2021.e07506

Hing, N., Russell, A. M. T., Browne, M., Rockloff, M., Greer, N., Rawat, V., Stevens, M., Dowling, N., Merkouris, S., King, D., Breen, H., Salonen, A., & Woo, L. (2021). *The second national study of interactive gambling in Australia (2019-20)*. https://www.gamblingresearch.org.au/sites/default/files/2021-10/Final IGS report 2021.pdf

Hodgins, D. C., Young, M. M., Currie, S. R., Abbott, M., Billi, R., Brunelle, N., Costes, J.-M., Dufour, M., Flores-Pajot, M.-C., Olason, D. T., Paradis, C., Romild, U., Salonen, A., Volberg, R., & Nadeau, L. (2022). Lower-risk gambling limits: Linked analyses across eight countries. *International Gambling Studies*, 1-17. https://doi.org/10.1080/14459795.2022.2143546

Ipsos, & Strategic Science. (2020). *British Columbia Online Problem Gambling Prevalence Study*. https://prism.ucalgary.ca/handle/1880/113694

Jacobs, D. F. (1986). A general theory of addictions: A new theoretical model. *Journal of Gambling Behavior*, *2*(1), 15-31. https://doi.org/10.1007/BF01019931

Jacobs, D. F. (1988). Evidence for a common dissociative-like reaction among addicts. *Journal of Gambling Behavior*, *4*(Journal Article), 27-37.

Johansson, A., Grant, J. E., Kim, S. W., Odlaug, B. L., & Gotestam, K. G. (2009). Risk factors for problematic gambling: A critical literature review. *J Gambl Stud*, *25*(1), 67-92. https://doi.org/10.1007/s10899-008-9088-6

10.1007/s10899-008-9088-6.

Kessler, R., Hwang, I., LaBrie, R., Petukhova, M., Sampson, N., Winters, K., & Shaffer, H. (2008). The prevalence and correlates of DSM-IV pathological gambling in the national comorbidity survey replication. *Psychological Medicine*, *38*(9), 1351-1360.

Kokkalou, C., Phellas, C., St. Stylianou, A., Adonis, M., & Kentas, G. (2018). *Report on the results of the National Quantitative Survey on the prevalence, behaviours and characteristics of gamblers in 2017*. Insights Market Research (IMR) Ltd. https://nba.gov.cy/wp-content/uploads/ReportGambling_EN.pdf

Lamont, M., & Hing, N. (2018). Sports betting motivations among young men: An adaptive theory analysis. *Leisure Sciences*, 1-20.

Lesieur, H. R., & Blume, S. B. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry*, *144*(9).

Lopez-Gonzalez, H., Estévez, A., & Griffiths, M. D. (2018). Controlling the illusion of control: A grounded theory of sports betting advertising in the UK [Article]. *International Gambling Studies*, *18*(1), 39-55. https://doi.org/10.1080/14459795.2017.1377747

Lopez-Gonzalez, H., & Griffiths, M. D. (2018). Understanding the convergence of markets in online sports betting. *International Review for the Sociology of Sport*, *53*(7), 807-823. https://doi.org/10.1177/1012690216680602

Marionneau, V., & Nikkinen, J. (2022). Gambling-related suicides and suicidality: A systematic review of qualitative evidence. *Front Psychiatry*, *13*.

Mongan, D., Millar, S. R., Doyle, A., Chakraborty, S., & Galvin, B. (2022). *Gambling in the Republic of Ireland: Results from the 2019–20 National Drug and Alcohol Survey*. https://www.hrb.ie/fileadmin/2._Plugin_related_files/Publications/2022_Publication_files/2022_Evidence_Centre/Gambling_in_the_Republic_of_Ireland_Results_from_the_2019-20_National_Drug_and_Alcohol_Survey.pdf

National Betting Authority. (2022). *Safer Gambling Strategy for 2022–2025: The road to a public health approach in Cyprus*. https://nba.gov.cy/wp-content/uploads/22.05.26-SG_Strategy22-25_EN-FINAL.pdf

National Research Council. (1999). *Pathological gambling: A critical review*. National Academies Press. https://doi.org/https://doi.org/10.17226/6329

Neophytou, K., Theodorou, M., Theodorou, C., Artemi, T. F., & Panayiotou, G. (2021). Population Screening of Gambling Behavior: Playing to Escape From Problems May Be a Key Characteristic of At-Risk Players [Article]. *Front Psychiatry*, *12*, 690210, Article 690210. https://doi.org/10.3389/fpsyt.2021.690210

Parke, A., Harris, A., Goddard, P., & Parke, J. (2014). *The role of stake size in loss of control in within-session gambling - impact of stake size on reflection impulsivity, response inhibition and arousal when gambling on a simulated virtual roulette gambling task: Implications for gambling related harm*. R. G. Trust. http://www.greo.ca/Modules/EvidenceCentre/files/http://www.responsiblegamblingtrust.org.uk/user_uploads/pdfs/the%20role%20of%20stake%20size%20in%20loss%20of%20control%20in%20within-session%20gambling.pdf

Petry, N. M., Stinson, F. S., & Grant, B. F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry*, *66*, 564-574.

Rahman, A. S., Pilver, C. E., Desai, R. A., Steinberg, M. A., Rugle, L., Krishnan-Sarin, S., & Potenza, M. N. (2012). The relationship between age of gambling onset and adolescent problematic gambling severity. *Journal of Psychiatric Research*, *46*(5), 675-683. https://doi.org/10.1016/j.jpsychires.2012.02.007

Rockloff, M., Browne, M., Hing, N., Thorne, H., Russell, A., Greer, N., Tran, K., Brook, K., & Sproston, K. (2020). *Victorian population gambling and health study 2018–2019*. https://responsiblegambling.vic.gov.au/documents/759/Population_study_2018_2019_PUBLISHED_REPORT_March_2020.pdf

Stone, C. A., Romild, U., Abbott, M., Yeung, K., Billi, R., & Volberg, R. (2015). Effects of Different Screening and Scoring Thresholds on PGSI Gambling Risk Segments [Article]. *International Journal of Mental Health and Addiction*, *13*(1), 82-102. https://doi.org/10.1007/s11469-014-9515-0

Subramaniam, M., Chong, S. A., Browning, C., & Thomas, S. (2017b). Cognitive distortions among older adult gamblers in an Asian context [Article]. *PLoS One*, *12*(5), 15, Article e0178036. https://doi.org/10.1371/journal.pone.0178036

Volberg, R. A., Gerstein, D. R., Christiansen, E. M., & Baldridge, J. (2001). Assessing self-reported expenditures on gambling. *Managerial and Decision Economics*, *22*(1-3), 77-96.

Volberg, R. A., Williams, R. J., Stanek, E. J., Houpt, K. A., Zorn, M., & Rodriguez-Monguio, R. (2017). *Gambling and problem gambling in Massachusetts: Results of a baseline population survey*. U. o. M. A. School of Public Health and Health Sciences. https://massgaming.com/wp-content/uploads/Gambling-and-Problem-Gambling-in-Massachusetts-Results-of-a-Baseline-Population-Survey_9.15.2017_Report.pdf

Walker, M. B. (1992). *The psychology of gambling* (Vol. 24). Pergamon Press.

Wardle, H., Moody, A., Spence, S., Orford, J., Volberg, R. A., Jotangia, D., Griffiths, M. D., Hussey, D., & Dobbie, F. (2011). *British gambling prevalence survey 2010*. National Centre for Social Research. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/243515/9780108509636.pdf

Williams, R. J., & Volberg, R. A. (2013). The classification accuracy of four problem gambling assessment instruments in population research [Article]. *International Gambling Studies*, *14*(1), 15-28. https://doi.org/10.1080/14459795.2013.839731

Williams, R. J., Volberg, R. A., & Stevens, R. M. G. (2012). *The population prevalence of problem gambling: Methodological influences, standardized rates, jurisdictional differences, and worldwide trends*. O. P. G. R. Centre. http://www.greo.ca/Modules/EvidenceCentre/Details/population-prevalence-problem-gambling-methodological-influences-standardized-rates-0

Wood, R. T., & Williams, R. J. (2007). 'How Much Money Do You Spend on Gambling?' The Comparative Validity of Question Wordings Used to Assess Gambling Expenditure [Article]. *International Journal of Social Research Methodology*, *10*(1), 63-77. https://doi.org/10.1080/13645570701211209

Young, M. M., Hodgins, D. C., Brunelle, N., Currie, S., Dufour, M., Flores-Pajot, M.-C., Paradis, C., & Nadeau, L. (2021). *Developing lower-risk gambling guidelines*. Canadian Centre on Substance Use and Addiction. https://gamblingguidelines.ca/resource/developing-lower-risk-gambling-guidelines-report/

Young, M. M., & Wohl, M. J. (2009). The Gambling Craving Scale: Psychometric validation and behavioral outcomes [Research Support, Non-U.S. Gov't]. *Psychology of Addictive Behaviors*, *23*(3), 512-522. https://doi.org/10.1037/a0015043