



Problem gambling among European adolescents: potential risk of gambling products and online gambling

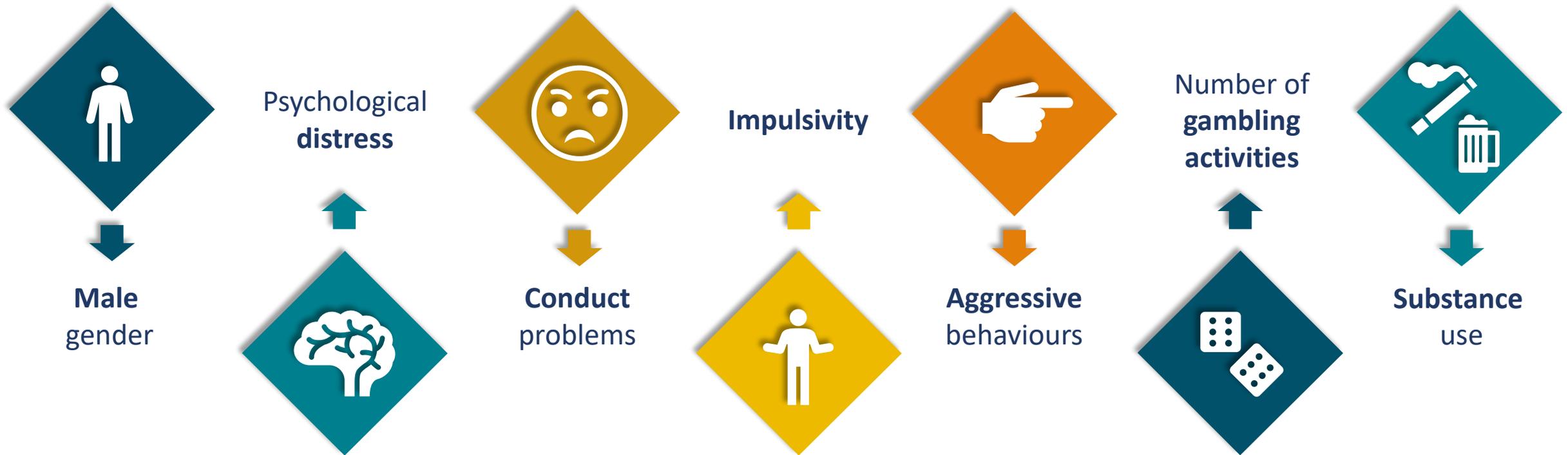
Benedetti E., Lombardi G., Cotichini R., Cerrai S., Scalese M.,
Molinaro S.

Elisa Benedetti, Ph.D

Researcher, National Research Council (Italy)

ESPAD Project Manager

Problem Gambling: individual risk factors



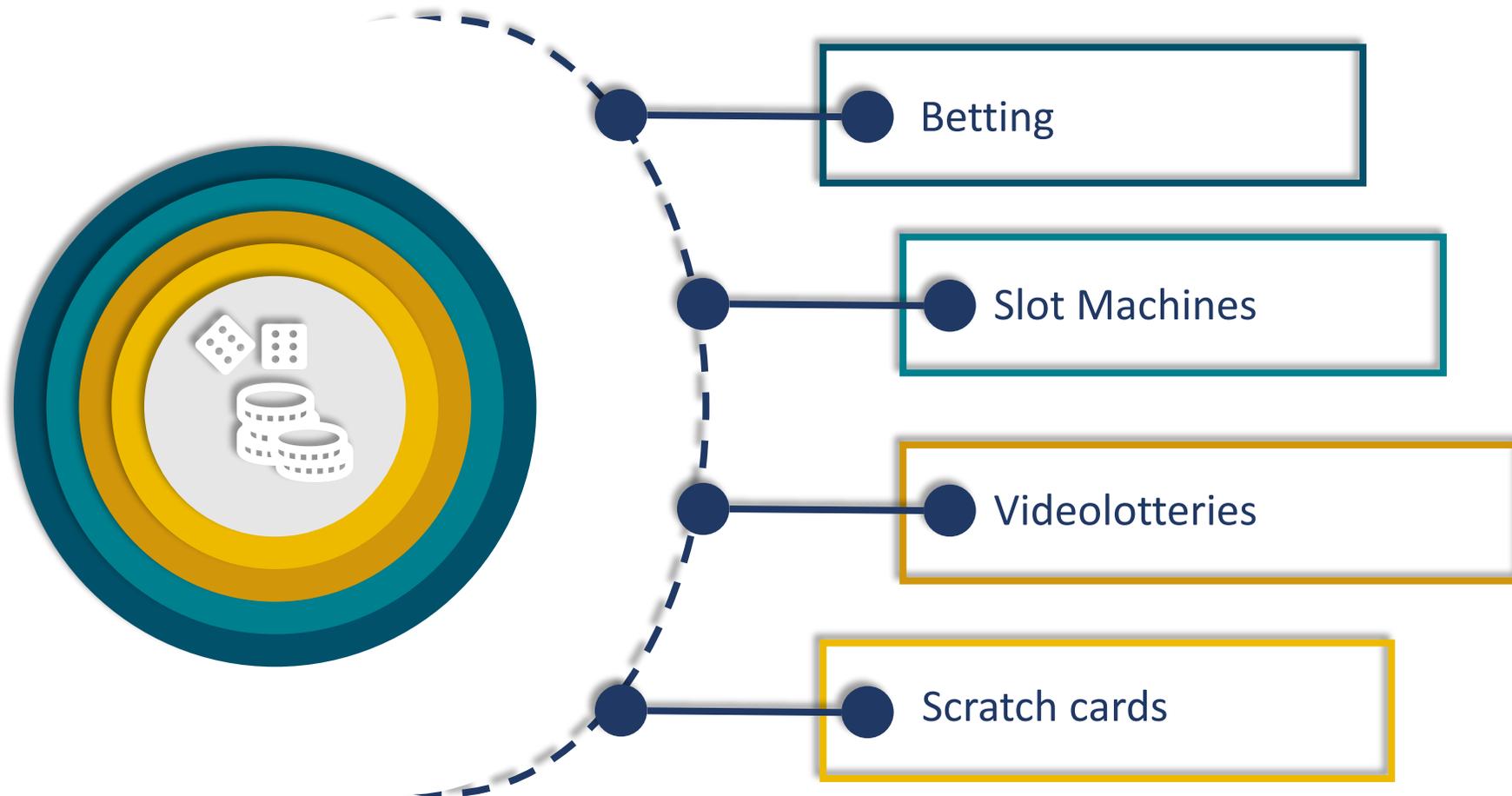
Problem Gambling: environmental risk factors



Problem Gambling: protective factors



Problem Gambling: common types of gambling products



1

What are factors important for increasing the odds of engaging in gambling among European adolescents? Do the same factors play a role in triggering problematic gambling?

2

Can regional patterns in prevalence be identified?

3

Is online gaming an important factor for generating problematic gamblers?

4

What kind of games are more likely to trigger problematic behaviors among adolescent gamblers?

-  Data were drawn from the **ESPAD** cross-sectional survey, collecting data on risk-behaviours among students in several European countries.
-  The **sample (n= 85,420)** comes from 33 countries that participated in the 2019 data collection: it includes representative samples of students who turned 16 years in the survey year.
-  Gamblers were identified as those who had **gambled for money on at least one out of four games of chance** (slot machines, cards or dice, lottery, betting on sports or animal races) **in the last 12 months**.
-  The dependent variable of problem gambling was based on the **Consumption Screen for Problem Gambling** (Rockloff, 2012). The CSPG consists of three questions measuring:
 1. *Gambling frequency;*
 2. *Time spent on gambling;*
 3. *Gambling intensity.*Summing up scores, those scoring 4+ points were considered at high risk of problem gambling based on the cut-off indicated in Rockloff (2012).



To calculate the **Gambling Product Index (GPI)** a question was asked for each type of gambling product: Slot machines (fruit machine, new slot, etc.); Cards or dice (poker, bridge, dice, etc.); Lotteries (scratchcards, bingo, etc.); Betting on sports or animals (horses, dogs etc.):

Question: *If you have gambled for money in the last 12 months, which games have you played? (for each game indicate the frequency A/N)*

Answer code	Answer text	At least per year
ans1	I have not played this game	0
ans2	Monthly or less	1
ans3	2-4 times a month	24
ans4	2-3 times or more a week	104

$$N\text{-GPI}_{c,g} = \frac{0 \times N_{c,g,ans1} + 1 \times N_{c,g,ans2} + 24 \times N_{c,g,ans3} + 104 \times N_{c,g,ans4}}{N_c}$$

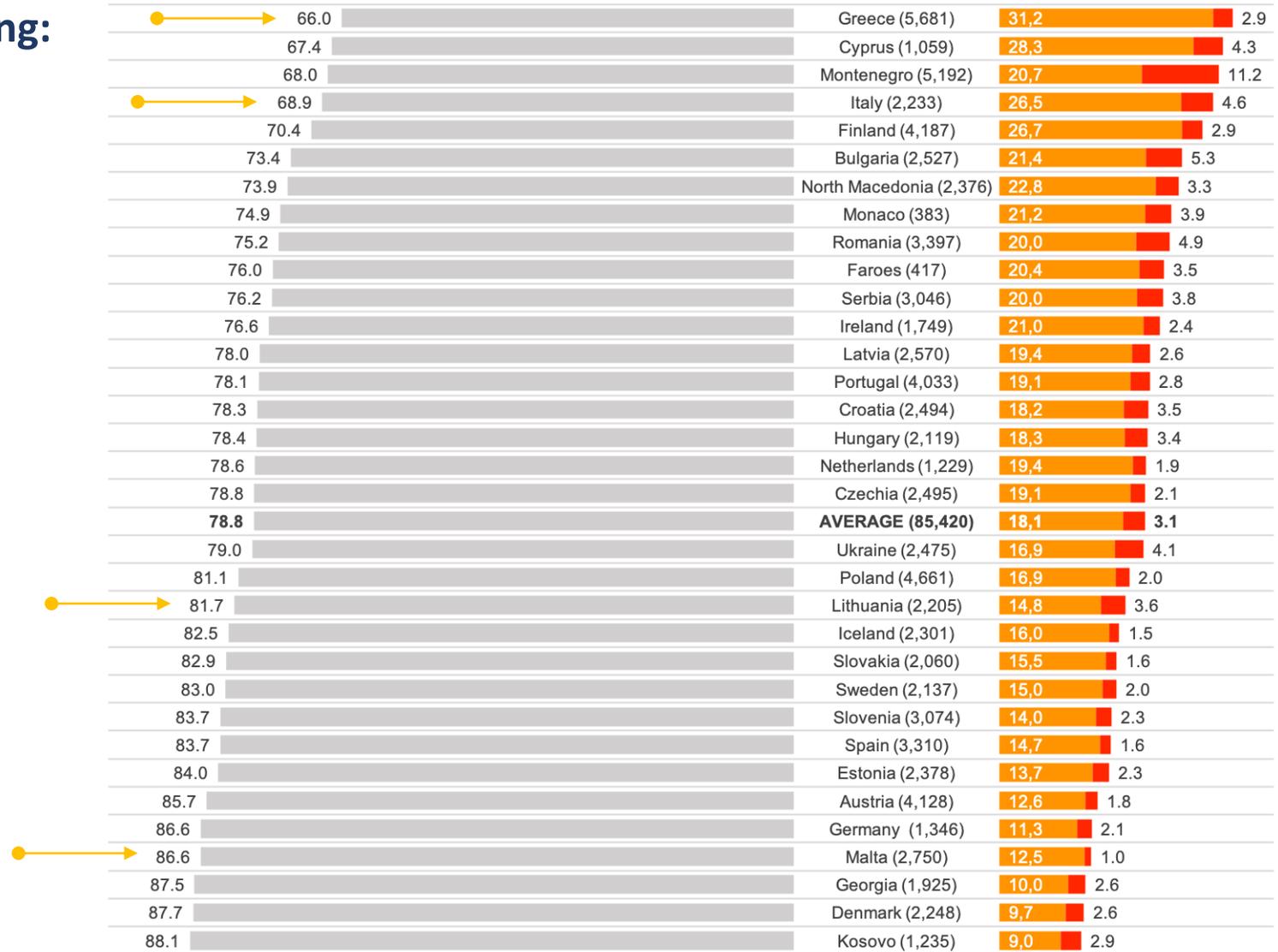
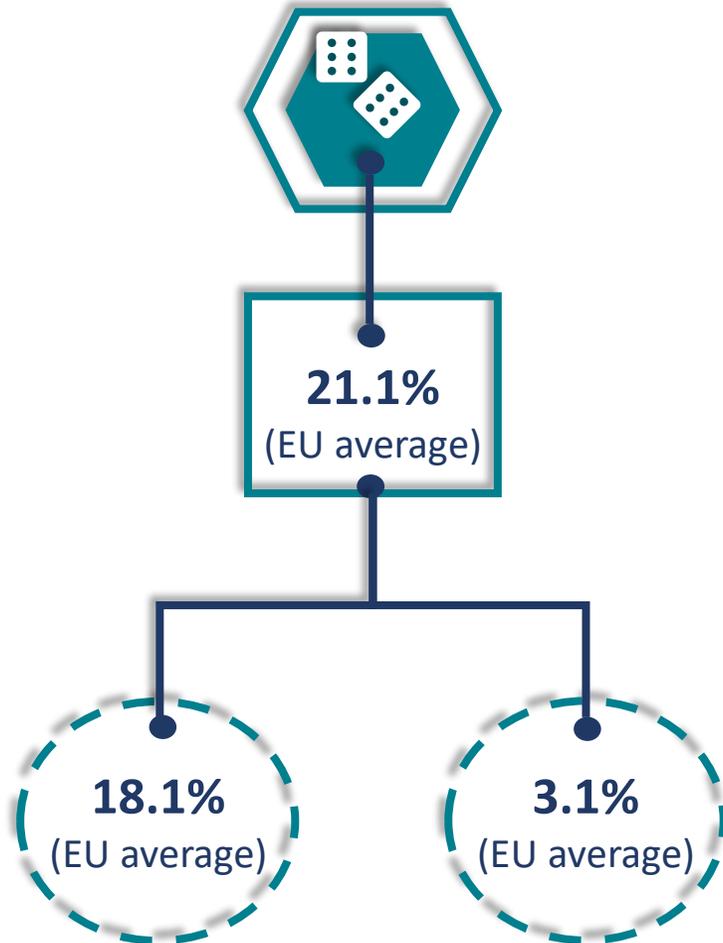
where c represents the country, g the type of game, $ansx$ indicates the answer that each subject provided the questions, N represents the number of individuals in our sample.

Thus the GPI can be interpreted as an **indicator of the average frequency of gambling for a particular game in a specific country.**



Gambling by country

Gambling engagement and problem gambling: Europe at a glance

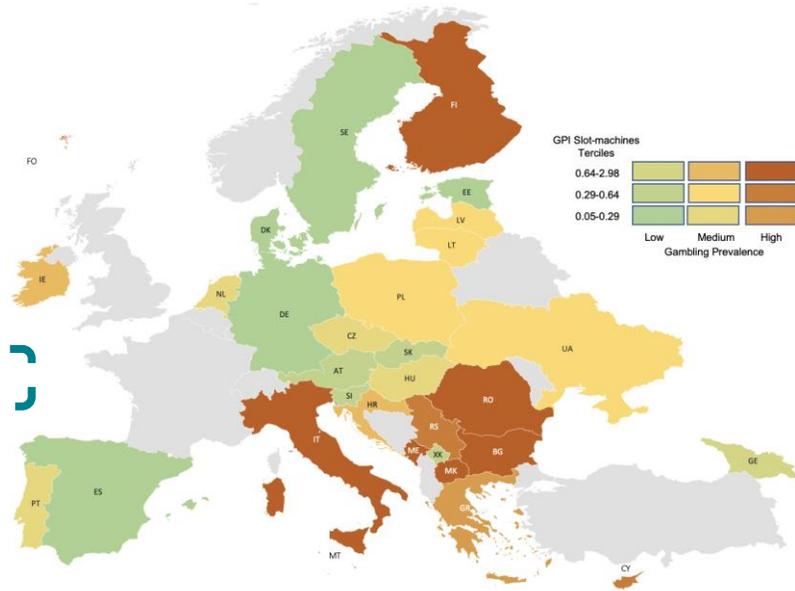


■ Not gambler ■ Non-problematic gambler ■ Problematic gambler

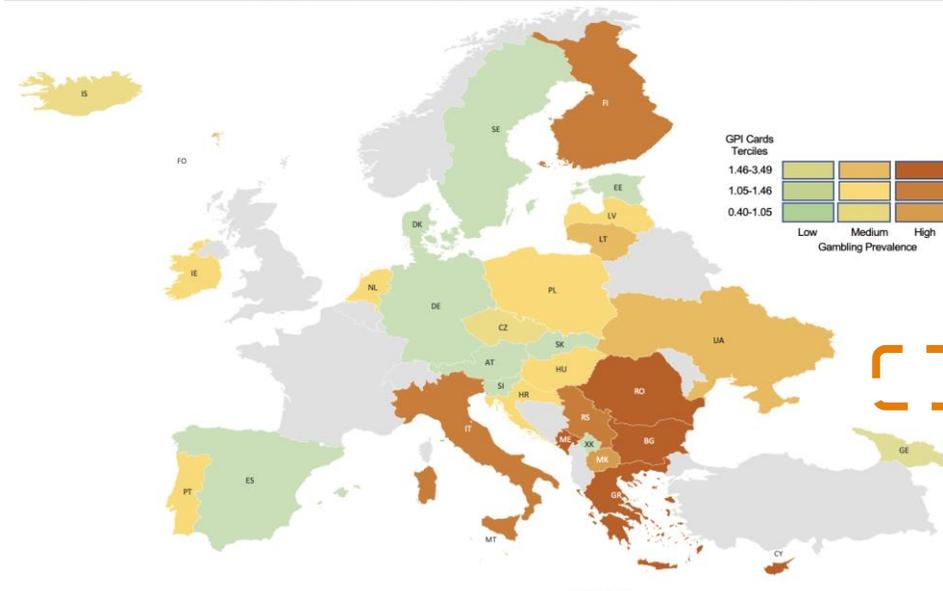


Regional patterns

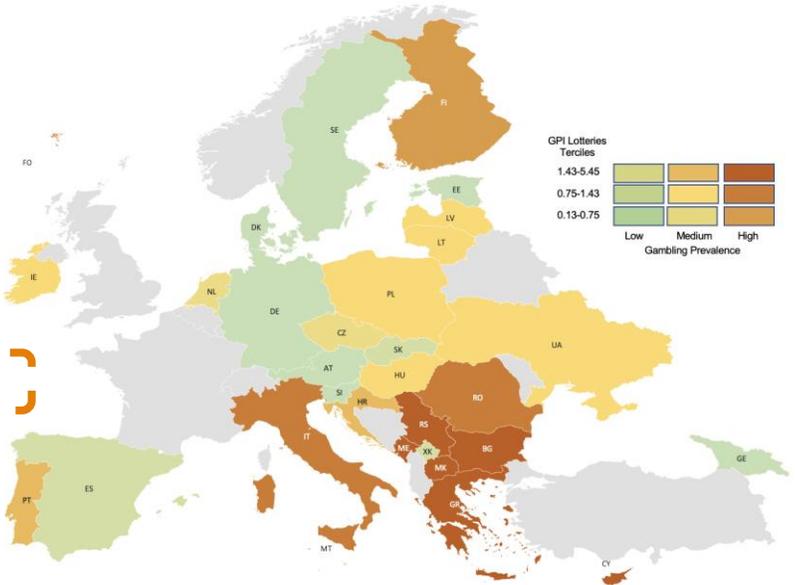
Slot Machines



Cards



Lotteries



Betting





Descriptive statistics

Means and standard deviations (between brackets) for the covariates in the totalsample and divided by the four examined outcomes.

	Total		Not gambler		Gambler		Not at-risk Gambler		At-risk Gambler	
	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ
Female	0.529	-0.36	0.579	-0.49	0.35	-0.48	0.39	-0.49	0.14	-0.35
Family Support Index	5.747	-1.63	5.767	-1.62	5.68	-1.66	5.7	-1.62	5.53	-1.85
Friend Support Index	5.544	-1.65	5.556	-1.65	5.5	-1.65	5.53	-1.62	5.37	-1.81
<i>School Missed (Ref: 0 days)</i>										
1-2 days	0.326	-0.47	0.332	-0.47	0.31	-0.46	0.31	-0.46	0.25	-0.43
3-5 days	0.201	-0.40	0.201	-0.4	0.22	-0.42	0.23	-0.42	0.22	-0.42
5 days or more	0.233	-0.42	0.217	-0.41	0.29	-0.45	0.28	-0.45	0.38	-0.48
<i>Highest Parental Education (Ref: Up to non-completed Secondary School)</i>										
Non completed university	0.398	-0.49	0.391	-0.49	0.42	-0.49	0.42	-0.49	0.43	-0.5
Completed university	0.408	-0.49	0.409	-0.49	0.40	-0.49	0.40	-0.49	0.39	-0.49
<i>Family Well off (Ref: Less off)</i>										
About the same	0.462	-0.50	0.471	-0.5	0.43	-0.5	0.44	-0.5	0.38	-0.48
Well off	0.453	-0.50	0.444	-0.5	0.49	-0.5	0.34	-0.47	0.53	-0.5
<i>Parental Monitoring (Ref: About Always)</i>										
Sometimes	0.283	-0.45	0.268	-0.44	0.34	-0.47	0.34	-0.47	0.32	-0.47
About Never	0.139	-0.35	0.123	-0.33	0.2	-0.4	0.18	-0.38	0.31	-0.46
<i>Parents give money (Ref: Seldom/Never)</i>										
Often/Sometimes	0.479	-0.45	0.48	-0.45	0.48	-0.5	0.48	-0.5	0.42	-0.49
Almost Always	0.305	-0.46	0.3	-0.46	0.33	-0.47	0.32	-0.47	0.37	-0.48
I-GPI _{slot}	-0.01	-1.01	-0.05	-0.97	0.14	-1.13	0.06	-1.04	0.59	-1.43
I-GPI _{cards}	-0.01	-1.00	-0.05	-0.99	0.15	-1.01	0.11	-0.99	0.35	-1.08
I-GPI _{lotteries}	0.005	-1.01	-0.06	-0.96	0.22	-1.12	0.15	-1.04	0.62	-1.43
I-GPI _{betting}	-0.01	-1.01	-0.05	-0.97	0.17	-1.12	0.09	-1.02	0.61	-1.36
Online Gaming	0.066	-0.25	0.007	-0.08	0.28	-0.45	0.22	-0.41	0.63	-0.48
Number of observations	85,420		66,843		18,577		15,837		2,740	



The analysis is conducted through a **probit model with sample selection correction** (Heckman, 1979) as proposed by Van de Ven and Van Praag (1981).



In particular, in the **selection equation** all the individual variables are included in order to determine how they influence the probability of **being or not a gambler**, and the environmental variables (i.e. GPIs).



In the **second step**, in order to determine **gamblers at risk of problematic behavior**, the four GPIs are removed, but the dummy variable indicating the usage of online gaming, which would have shown a perfectly predicted outcome in the first stage, is included.



Finally, through the estimation of separate models on the subsamples of players and problematic gamblers for each of the four type of games, we are able to plot **predicted probabilities** (Williams, 2012) for the effect of each game on the others, conditioned to the usage of online gaming.



Results: Gamblers vs Problematic Gamblers

	Probit Outcome: Not Gambler/Gambler		Probit Outcome: Not at-risk/At risk		Heckman Probit First Step: Not Gambler/Gambler; Second Step: Not at-risk/At risk			
	(1)		(2)		(3.1)		(3.2)	
	$\hat{\beta}$	s.d.	$\hat{\beta}$	s.d.	$\hat{\beta}$	s.d.	$\hat{\beta}$	s.d.
Female	-0.540***	-0.035	-0.521***	-0.06	-0.539***	-0.03	-0.068	-0.2
Family Support Index	-0.025***	-0.006	-0.018*	-0.01	-0.025***	-0.01	0.001	-0.01
Friend Support Index	0.021***	-0.006	0.004	-0.01	0.022***	-0.01	-0.012*	-0.01
<i>School Missed (Ref: 0 days)</i>								
1-2 days	0.158***	-0.017	-0.001	-0.04	0.158***	-0.02	-0.123***	-0.03
3-5 days	0.269***	-0.022	0.087**	-0.04	0.267***	-0.02	-0.148**	-0.06
5 days or more	0.361***	-0.027	0.255***	-0.04	0.360***	-0.03	-0.106	-0.11
<i>Highest Parental Education (Ref: Less than High School (HS))</i>								
HS	0.111***	-0.03	0.081	-0.07	0.106***	-0.03	-0.062**	-0.03
More than HS	0.049*	-0.026	-0.017	-0.07	0.049*	-0.03	-0.082***	-0.03
<i>Family Well off (Ref: Less off)</i>								
About the same	-0.019	-0.024	-0.086*	-0.05	-0.016	-0.02	-0.027	-0.03
Better off	0.042*	-0.022	0.037	-0.07	0.047**	-0.02	-0.020	-0.03
<i>Parental Monitoring (Ref: About Always)</i>								
Sometimes	0.228***	-0.018	-0.007	-0.03	0.228***	-0.02	-0.146***	-0.04
About Never	0.345***	-0.029	0.265***	-0.05	0.344***	-0.03	-0.053	-0.12
<i>Parents give money (Ref: Seldom/Never)</i>								
Often/Sometimes	0.075***	-0.013	-0.079**	-0.03	0.073***	-0.01	-0.111***	-0.02
Almost Always	0.145***	-0.017	0.123**	-0.05	0.139***	-0.02	0.061	-0.05
I-GPIslot	-0.042	-0.08	-	-	-0.012	-0.07	-	-
I-GPIcards	0.034	-0.037	-	-	0.025	-0.03	-	-
I-GPIlotteries	0.173**	-0.072	-	-	0.146*	-0.08	-	-
I-GPIbetting	-0.011	-0.084	-	-	0.003	-0.07	-	-
Online Gaming	-	-	0.883***	-0.03	-	-	0.553***	-0.16
Constant	-0.986***	-0.04	-1.309***	-0.08	-1.249***	-0.04	-2.411***	-0.09
Number of observations	85,420		18,577		85,420			
Log-Likelihood	-40,476.684		-6,484.583		-46,836.540			
Pseudo R2	0.0680		0.152		-			
Error Correlations					-0.848**		(0.138)	



Players' profile: potential influencing factors

GAMBLER vs NON-GAMBER

- Male adolescent
- High friends' support
- Low family support
- Miss days school
- Better-off
- Low monitoring of free time
- Free access to money
- Lives in a country where lotteries are popular among peers



PROBLEMATIC GAMBLER vs GAMBLER

- Online gamer
- Low friends' support
- Miss a lot or no days of school
- Both low-educated parents
- Low or very high monitoring of free time
- High or no money availability

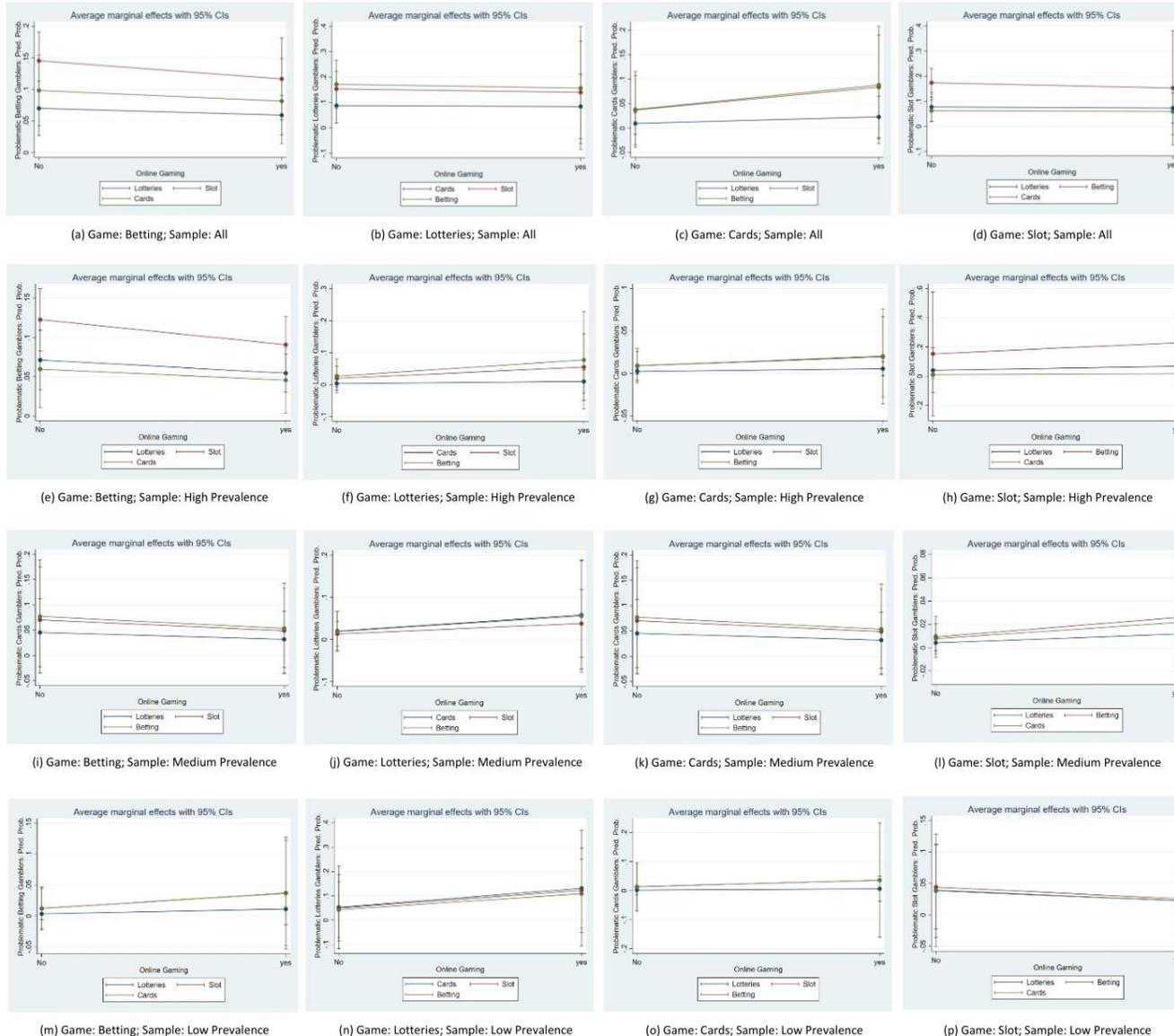


Results: Types of games and Online gaming

Marginal effects of types of games on the probability of being a problem gambler

... In order to investigate the existence of **differences among the various gambling products**, separate models were estimated game by game, where each time the remaining three games are used as covariates in the second step.

- Being a **betting** gambler is usually greater associated with a risk of problematic behavior.
- The opposite applies with regard to **lotteries**.
- Being an at-risk betting gambler is more associated with being also a **slot-machine** player.
- **Online gaming** increases the chances of problematic behaviors especially in playing **cards**, while it has no effect with regard to lotteries and slot-machines, and a negative effect looking at betting.





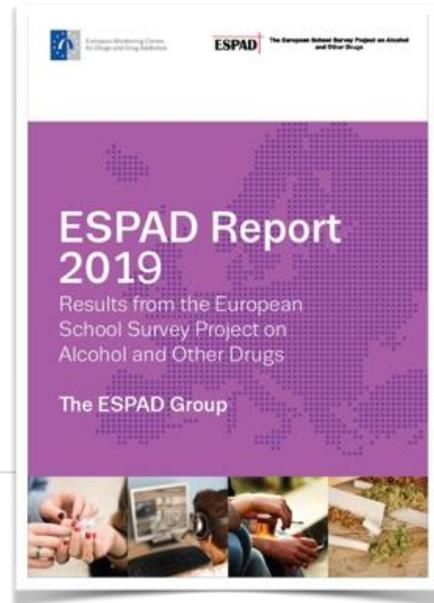
ESPAD

European School Survey Project on Alcohol and Other Drugs

ESPAD data access



European
report



Additional
tables



data.espad.org



The screenshot displays the ESPAD data access interface. On the left, a purple banner for the 'European School Survey Project on Alcohol and Other Drugs' is partially visible. The main content area shows search results for 'Cannabis, availability'. Two survey questions are listed with their respective answer distributions:

- Question 1:** "How difficult do you think it would be for you to get cannabis if you wanted?"
 - Answers: 435.817
 - No: 70.15%
 - Yes: 29.85%
- Question 2:** "How difficult do you think it would be for you to get: Tranquillisers or sedatives?" (UNTIL 2015)
 - Answers: 549.635
 - No: 75.97%
 - Yes: 24.03%

At the bottom of the page, a summary bar provides the following statistics:

- 7th wave
- 2019 year
- 35 countries
- 102.484 participating students

data.espad.org



Conclusions



Gambling in the first step is favored by factors such as **friends' support and parental education**, which are components involved in the social context lived by kids.



On the other side, these factors loose power in triggering problematic gambling, much more favored by individual characteristics as the **perception of one's own economic availability**.



Both a **very high and very low money availability** are always important in strengthening gambling and problematic gambling. At-risk players are also fostered in those **countries with higher shares of lotteries gamers**.



It is confirmed that **online gaming**, with its high accessibility and availability, is an important trigger for problematic gambling behaviors. Regarding types of games, **slot machines and betting** emerge as the most addictive ones.



Take-home messages

- Starting to gamble attain more to what can be called a “social dimension”, while problematic gambling to the “individual behaviors”.
- Focus on *telescoping effect*: if it is true that women are less likely to gamble, they are faster in reaching problematic gambling behaviour.
- Especially with regard to family, the rule seems to apply: in *media res*, where being not too permissive nor too strict reduces the probability of a child developing a problematic gambling behavior.
- Special attention should be devoted to online gaming, sharing basic mechanisms of gambling and allowing unsupervised time and escape from social control.



Richard, J., Fletcher, E., Boutin, S., Derevensky, J., & Temcheff, C. (2020). Conduct problems and depressive symptoms in association with problem gambling and gaming: A systematic review. *Journal of Behavioral Addictions, 9*(3), 497-533.

Livazović, G., & Bojčić, K. (2019). Problem gambling in adolescents: what are the psychological, social and financial consequences?. *Bmc Psychiatry, 19*(1), 1-15.

Allami, Y., Vitaro, F., Brendgen, M., Carbonneau, R., & Tremblay, R. E. (2018). Identifying at-risk profiles and protective factors for problem gambling: A longitudinal study across adolescence and early adulthood. *Psychology of Addictive Behaviors, 32*(3), 373.

Pisarska, A., & Ostaszewski, K. (2020). Factors associated with youth gambling: Longitudinal study among high school students. *Public Health, 184*, 33-40.

Dowling, N. A., Merkouris, S. S., Greenwood, C. J., Oldenhof, E., Toumbourou, J. W., & Youssef, G. J. (2017). Early risk and protective factors for problem gambling: A systematic review and meta-analysis of longitudinal studies. *Clinical psychology review, 51*, 109-124.

Kang, K., Ok, J. S., Kim, H., & Lee, K. S. (2019). The gambling factors related with the level of adolescent problem gambler. *International Journal of Environmental Research and Public Health, 16*(12), 2110.

Richard, J., & King, S. M. (2022). Annual Research Review: Emergence of problem gambling from childhood to emerging adulthood: a systematic review. *Journal of Child Psychology and Psychiatry*.

Coco, G., Di Simone, D., Serlenga, L., & Molinaro, S. (2021). Risk Awareness and Complexity in Students' Gambling. *Southern Europe Research in Economic Studies, SERIES Working Papers, (01)*.



Thank you for your attention :)

Acknowledgments:

Gabriele Lombardi, UNIFI
Rodolfo Cotichini, CNR
Marina Baroni, CNR
Sonia Cerrai, CNR
Sabrina Molinaro, CNR

A special thanks goes to all members of ESPAD who collected the national data and to the funding bodies who supported the international coordination of ESPAD: the Italian National Research Council and the EMCDDA.



@EpidemiologiaRicercaCNR

