

# Gambling and Problem Gambling among Nordic Adolescents



Daníel Þór Ólason D.Phil

Department of Psychology

University of Iceland

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# Part I: Gambling among Nordic Youth

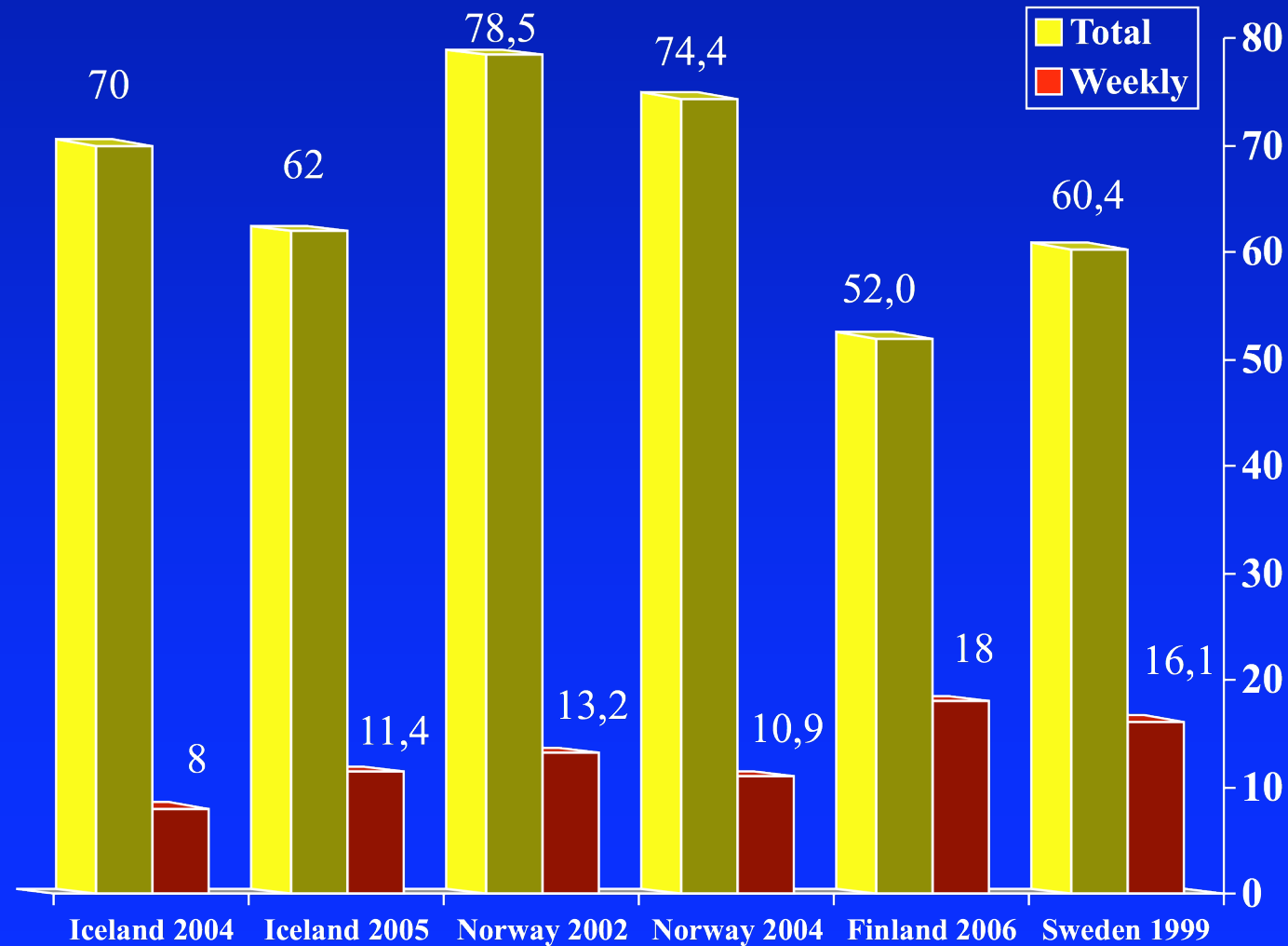
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- Gambling among Nordic Youth
  - Total gambling
  - Weekly gambling
  - Top three games
- Changes in gambling preference between two studies in Iceland
- Prevalence of PG among Nordic Youth
  - Gender differences
  - Prevalence in other countries
  - Accessibility of one type of gambling
- Summary

# Nordic Youth Studies

Studies	Year	N	Instrument	Response rates
				
Youth I (16-18 years)	2003	750	DSM-IV-MR-J/SOGS-RA	Convenience
Youth II (13-15 years)	2004	3.573	DSM-IV-MR-J/SOGS-RA	84%
Youth III (16-18 years)	2005	1.513	DSM-IV-MR-J	Convenience
				
Youth I (12-18 years)	1999	3.237	DSM-IV	45,2%
Youth II (13-19 years)	2002	12.000	Lie/Bet+chasing	92%
Youth III (13-19 years)	2004	20.703	Lie/Bet / SOGS-RA	80.2%
				
Youth I (15-17 years)	1997	1167	SOGS	72%
Youth II (16-18 years)	2003	178	SOGS	Convenience
				
Youth (12-17 years)	2006	5.000	SOGS-RA	?

# Past year gambling among Nordic youth



# Top three games among Nordic Youth

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	Iceland 2004	Iceland 2005	Norway 2002	Norway 2004	Sweden 1999	Finland 2006
<b>Nr. 1</b>	Scratch cards	Slot machines	Slot machines	Scratch cards	Fast lotteries	Slot machines
<b>Nr. 2</b>	Slot machines	Scratch cards	Scratch cards	Slot Machines	Slot machines	Scratch cards
<b>Nr. 3</b>	Lotto	Games of skill	Lotto/ football pools	Lotto	Local lotteries	Lotto

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# Top three games in other countries

	Scotland 2006	England /Wales 1999	Canada 2000	Louisiana 2000	Nevada 2002	Australia 2005
<b>Nr. 1</b>	Fruit machines	Fruit machines	Scratch cards	Scratch cards	Card/board games	Card games
<b>Nr. 2</b>	Raffles	Card games	Card games	Card games	Games of skill	Bingo/scratchies
<b>Nr. 3</b>	Games of skill	Games of skill	Lotteries	Sports betting	Side bets on Arcade/video games	Racing/sport betting

# Changes in gambling trends in Iceland?

<i>Gambling activity</i>	<b>Adolescent sample 1</b> N = 750		<b>Adolescent sample 2</b> N = 1513	
	<b>Regular gambling</b>	<b>Total gambling</b>	<b>Regular gambling</b>	<b>Total gambling</b>
Lotto	0.7%	30.4%	0,3%	14,4%
Gambling machines	5.7%	46.7%	6,7%	32,7%
Scratch-tickets	0.8%	53.7%	1.3%	29,3%
Games of skill	2.2%	24.5%	2,9%	25.4%
Football pools	4.5%	23.5%	1,5%	12,5%
Sport betting	-	-	1,3%	10,6%
Card games	1.0%	20.3%	-	-
Poker	-	-	1,7%	16,5%
Internet poker	-	-	0,6%	1,9%
Bingo	0.3%	14.2%	0.9%	10,2%
Internet gambling	0.4%	2.4%	2,2%%	15,8%

# Problem gambling among Nordic Youth

Studies	N	Instrument	PG %	Cutoff score	
	Youth I (16-18 y)	DSM-IV-MR-J	2,0	4+	
		SOGS-RA	2,7	4+	
	Youth II (13-15 y)	DSM-IV-MR-J	1,9	4+	
		SOGS-RA	2,8	4+	
	Youth III (16-18 y)	1.513	DSM-IV-MR-J	3,0	4+
		Youth II (13-19 y)	Lie/Bet	6,0	2
Lie/Bet+chasing			3,2	3	
Youth III (13-19 y)		Lie/Bet	3,5	2	
		SOGS-RA	2.5	4+	
	Youth I (15-17 y)	1.167	SOGS	0,9	5+
		Youth (12-17 y)	5.000	SOGS-RA	2,3

# Gender differences

	<b>Iceland (2003)</b>	<b>Iceland (2004)</b>	<b>Iceland (2005)</b>	<b>Norway (2002)</b>	<b>Norway (2004)</b>	<b>Finland (2006)</b>
	<b>PG (≥4)</b>	<b>PG (≥4)</b>	<b>PG (≥4)</b>	<b>PG (= 3)</b>	<b>PG (≥ 4)</b>	<b>PG (≥ 4)</b>
Boys	3.7%	3.4%	5.8%	5,4%	3.9%	3,7%
Girls	0.3%	0.4%	0.4%	1%	0,9%	0,9%

# Comparison with other countries

Country	N	PG %	Instrument	Year
<b>North America</b>	7,700	4,4-7,4	Various	1985-1994
USA-Louisiana	12,066	5,8	SOGS-RA	2000
USA-Nevada	1,004	2,2	SOGS-RA	2002
Canada-Atlantic provinces	13.549	2,2	SOGS-RA	2000
Canada-Montreal	817	4,7	DSM-IV-J	1998
<b>Australia</b>	926	4.4	DSM-IV-J	2005
<b>Europe</b>				
England and Wales	10,000	5,6	DSM-IV-MR-J	1999
Scotland	2042	9.0	DSM-IV-J	2006
Spain-Coruna	1,200	2,2	DSM-IV-J	1997

# Accessibility of EGMs in the Nordic countries

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- Electronic gaming machines (EGMs) are more popular among adolescents in Norway, Iceland and Finland than they are in the USA, Canada or Australia
- Fruit machines are also very popular in the UK!
- Unlike the UK, EGMs have an 18 year old age limit in both Norway and Iceland, and 15 in Finland!
- Like the UK, EGMs are widely distributed in public places in all three countries!
- Is it plausible that the easy access of EGMs in Norway, Iceland and Finland explain the popularity of the game among adolescents?

# EGM participation by location: 13-15 years

Location	Gambling frequency		
	Never	Seldom	Frequently
<b>GM in public locations</b>			
Social gambler	6.9	77.7	15.5
At risk gambler	-	58.9	41.1
Problem gambler	1.8	35.7	62.5
<b>Total</b>	<b>5.9</b>	<b>73.5</b>	<b>20.7</b>
<b>GM in Arcades</b>			
Social gambler	60.0	37.3	2.7
At risk gambler	33.3	56.5	10.2
Problem gambler	9.3	51.9	38.9
<b>Total</b>	<b>54.6</b>	<b>40.1</b>	<b>5.3</b>
<b>GM in restaurants/bars</b>			
Social gambler	78.7	19.7	1.6
At risk gambler	44.4	48.1	7.4
Problem gambler	28.6	46.4	25.0
<b>Total</b>	<b>72.6</b>	<b>24.0</b>	<b>3.4</b>

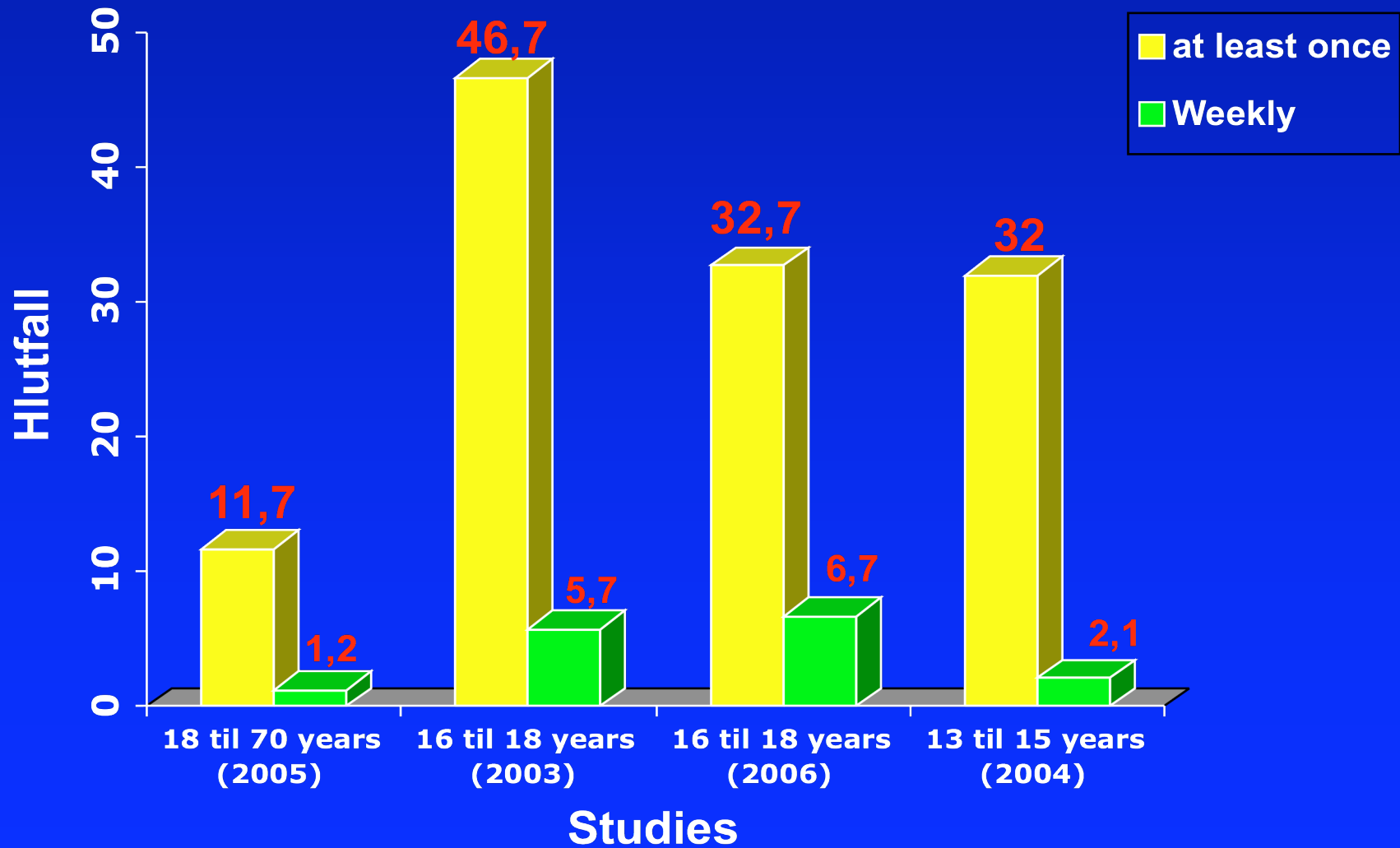
Note: All table values are percentages.

# EGM participation by location: 16-17 years

Location	Gambling frequency		
	Never	Seldom	Frequently
<b>GM in public locations</b>			
Social gambler	4,0	84,7	11,2
At risk gambler	0	48,6	51,4
Problem gambler	11,1	25,0	63,9
<b>Total</b>	<b>4,3</b>	<b>75,9</b>	<b>19,8</b>
<b>GM in Arcades</b>			
Social gambler	85,2	11,9	2,9
At risk gambler	61,1	30,6	8,3
Problem gambler	22,9	48,6	28,6
<b>Total</b>	<b>77,2</b>	<b>17,1</b>	<b>5,8</b>
<b>GM in restaurants/bars</b>			
Social gambler	87,0	12,0	1,0
At risk gambler	55,9	38,2	5,9
Problem gambler	31,4	40,0	28,6
<b>Total</b>	<b>78,8</b>	<b>17,1</b>	<b>4,1</b>

Note: All table values are percentages.

# Food for thought: Slot participation



# Summary

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- Total adolescent gambling participation is similar between the Nordic countries, except Finland!
- Regular gambling is lower in Iceland than other Nordic countries!
- Slot machines are more popular in the Nordic countries than in North-America or Australia! However, gambling preferences might be changing in Iceland!
- Problem gambling rates are similar in the Nordic and tend to be in the lower range of the prevalence rates reported in UK, North America and Australia.
- **Question:** Why are the prevalence rates lower, when our adolescents seem to gamble to a more extent on Slot machines?

## Part II: Potential risk factors of PG



Gender

Alcohol/drug abuse

General distress

Cognitive distortions

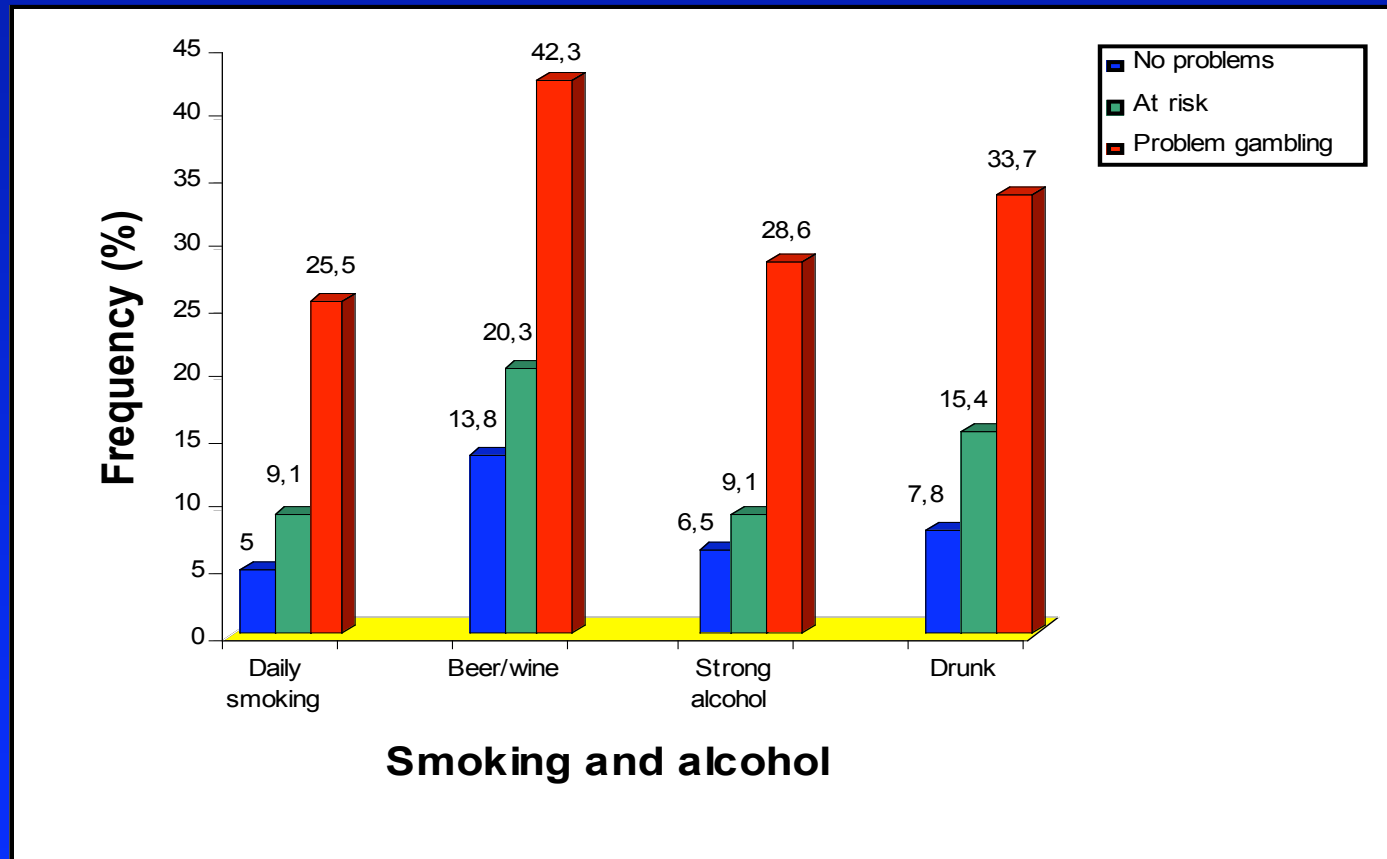
Attention deficit  
hyperactivity disorder

Types of gambling

Social factors

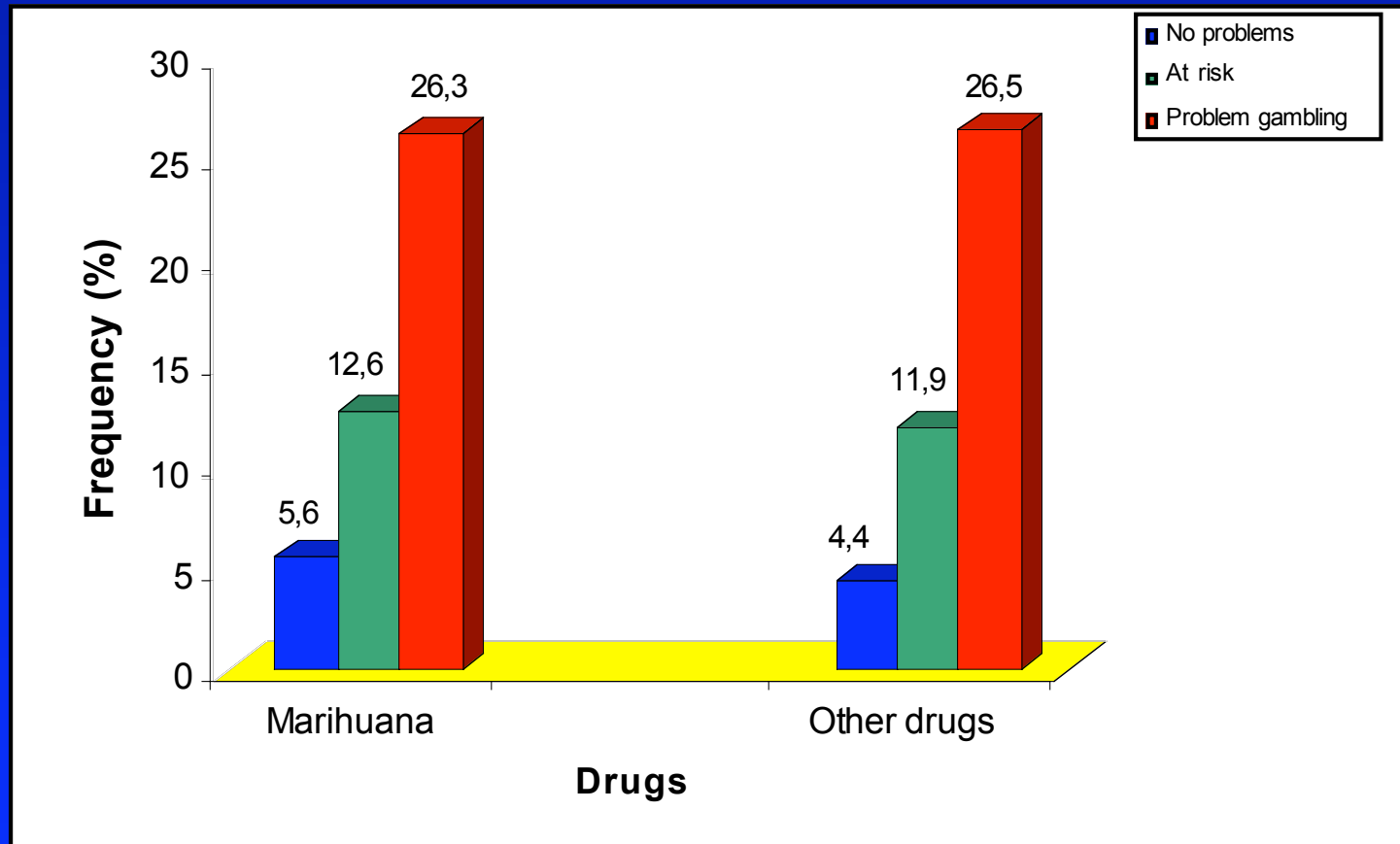


# PG and substance use



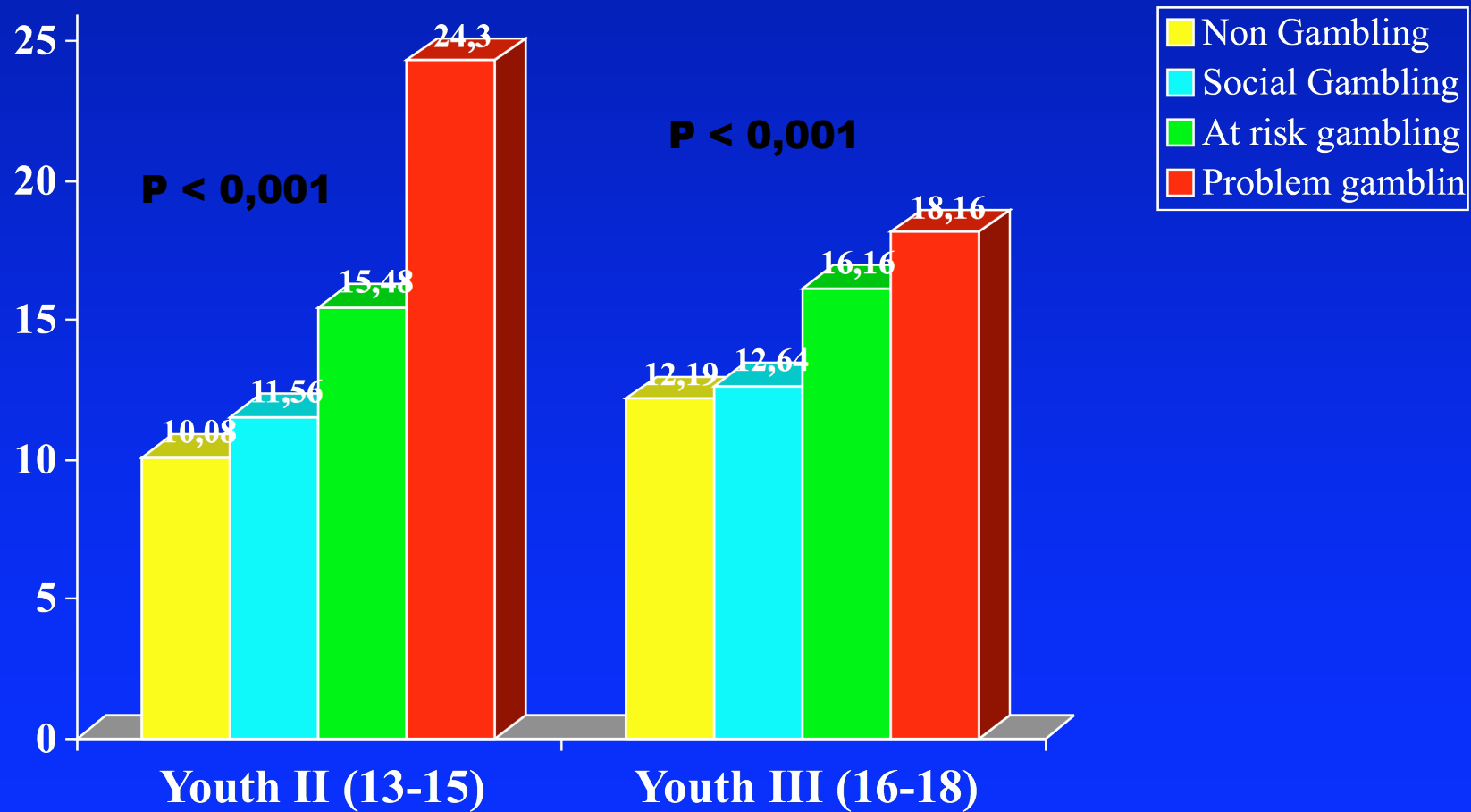
Problem gambling and regular use of alcohol (monthly or more).

## PG and substance use II



Problem gambling and use of drugs (at least once for the past 12 months).

## Depression scores by PG



## PG and cognitive distortions: 13-15 years

Statements	No problems	At risk	Problem
After loosing many times in a row, you are more likely to win.	17,6%	37,8%	44,6%**
You could win more if you use a certain system or strategy.	31,1%	51,2%	70,8%**
I am more likely to win than others.	5,3%	16,4%	44,6%**
I have earned more than I have lost in gambling.	30,9%	49,2%	53,8%**
I can often anticipate when I will be lucky in gambling.	21,3%	55,5%	64,6%**
As I gamble more the better gambler I will be.	13,6%	29,7%	50,8%**
<b>Total scores: Means (SD)</b>	<b>4.78 (3.17)</b>	<b>7.51 (3.40)</b>	<b>9.41 (3.93)**</b>

\*\*  $p \leq 0,01$ : Note: All figures are percentages of agreement with each statement

## PG and cognitive distortions: 16-18 years

Statements	No problems	At risk	Problem
After loosing many times in a row, you are more likely to win.	15,0%	26,8%	43,2%**
You could win more if you use a certain system or strategy.	40,1%	55,4%	70,5%**
I am more likely to win than others.	5,2%	17,9%	39,5%**
I have earned more than I have lost in gambling.	26,8%	41,1%	39,5%**
I can often anticipate when I will be lucky in gambling.	16,2%	46,4%	62,8%**
As I gamble more the better gambler I will be.	20,0%	46,4%	55,8%**
<b>Total scores: Means (SD)</b>	<b>4.92 (3.10)</b>	<b>7.53 (3.48)</b>	<b>9.04 (3.65)**</b>

\*\*  $p \leq 0,01$ : Note: All figures are percentages of agreement with each statement

# PG and ADHD

## 13-15 years old

Gambling groups	No symptoms of ADHD	Symptoms of ADHD	Chi-square
Non-gambler	96,1% (993)	3,9% (40)	240,18***
Social Gambler	93,3% (2024)	6,7% (146)	
At risk Gambler	75,6% (90)	24,4% (29)	
Problem Gambler	47,3% (26)	52,7% (29)	

## 16-18 years old

Gambling groups	No symptoms of ADHD	Symptoms of ADHD	Chi-square
Non-gambler	94,3% (526)	5,7% (32)	36,28***
Social Gambler	91,5% (739)	8,5% (69)	
At risk Gambler	90,7% (49)	9,3% (5)	
Problem Gambler	67,5% (27)	32,5% (13)	

# Association with types of games

	Youth II 13-15 years		Youth III 16 -18 years	
	Non-problem gamblers	Problem gamblers	Non-problem gamblers	Problem gamblers
Lotto	3.7%	25.8%**	1.1%	20.5%**
Gambling machines	9.8%	64.1%**	18,1%	78,6%**
Scratch -tickets	7.8%	47.7%**	4.8%	30,2%**
Games of skill	6.8%	43.5%**	9.4%	40.9%**
Football pools	8.6%	43.8%**	6,0%	37,2%**
Sport betting	5.9%	31.7%**	4.0%	38,6%**
Card games /Poker	4.7%	57.8%**	5,9%	43,2%**
Bingo	0.8%	22.2%**	1,4%	27,3%**
Internet gambling	0.4%	25.4%**	6,5%	40,5%**

# Variables for the multivariate analysis

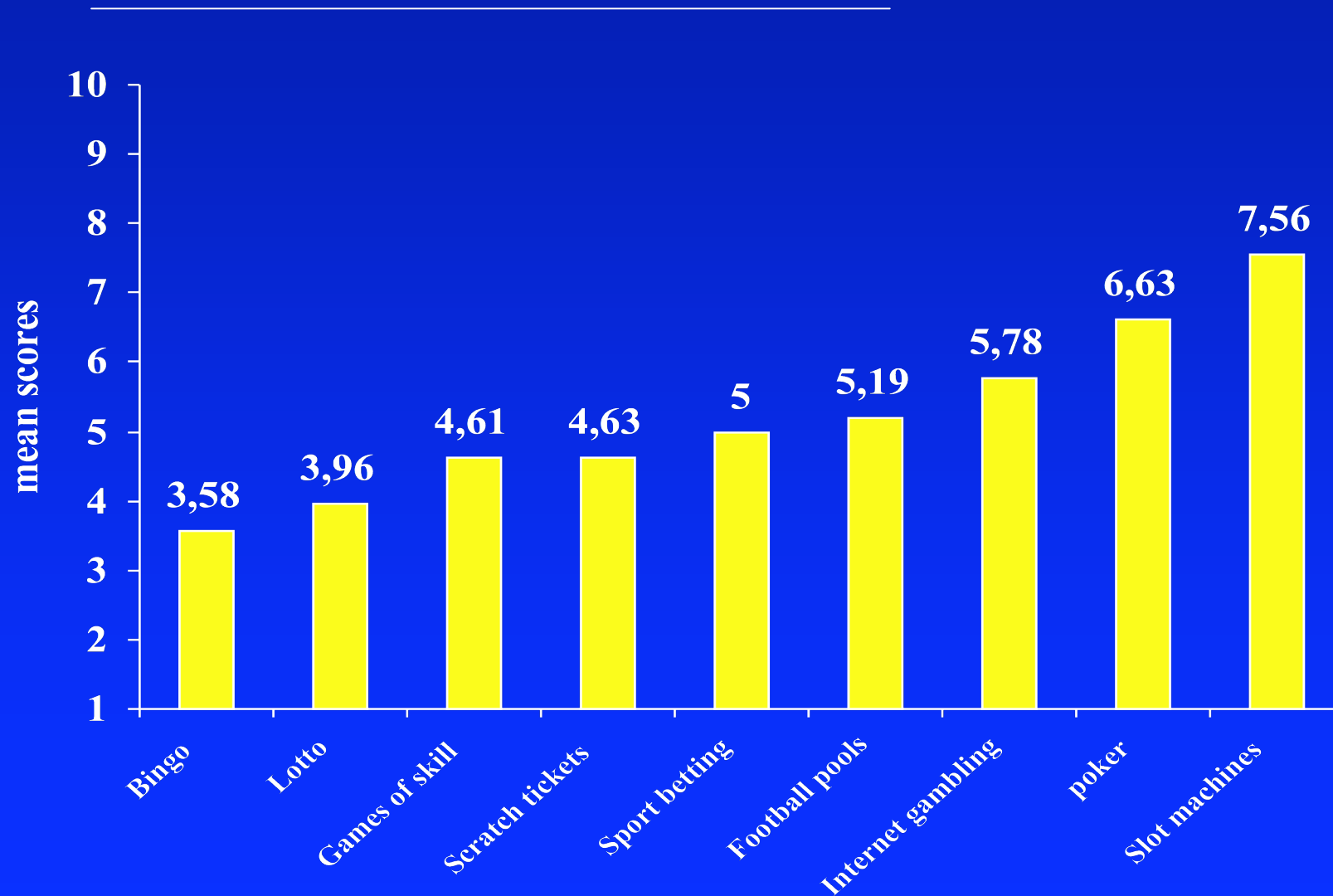
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- The univariate analyses suggest that monthly participation in most gambling activities, symptoms of ADHD, depression and cognitive distortions are associated to problem gambling among adolescents.
- However, it is important to determine the relative contribution of these variables to problem gambling after controlling for gender.
- The data of both samples was therefore reanalyzed with a Binary hierarchical logistic multiple regression.
- In the logistic regressions we entered in the first step the categorical variable gender and subsequently in step 2:
  1. Monthly gambling (1=monthly or more, 0=less than monthly),
  2. ADHD (1=symptoms of ADHD, 0=no symptoms of ADHD)
  3. The cumulative scores from CDQ and CES-D

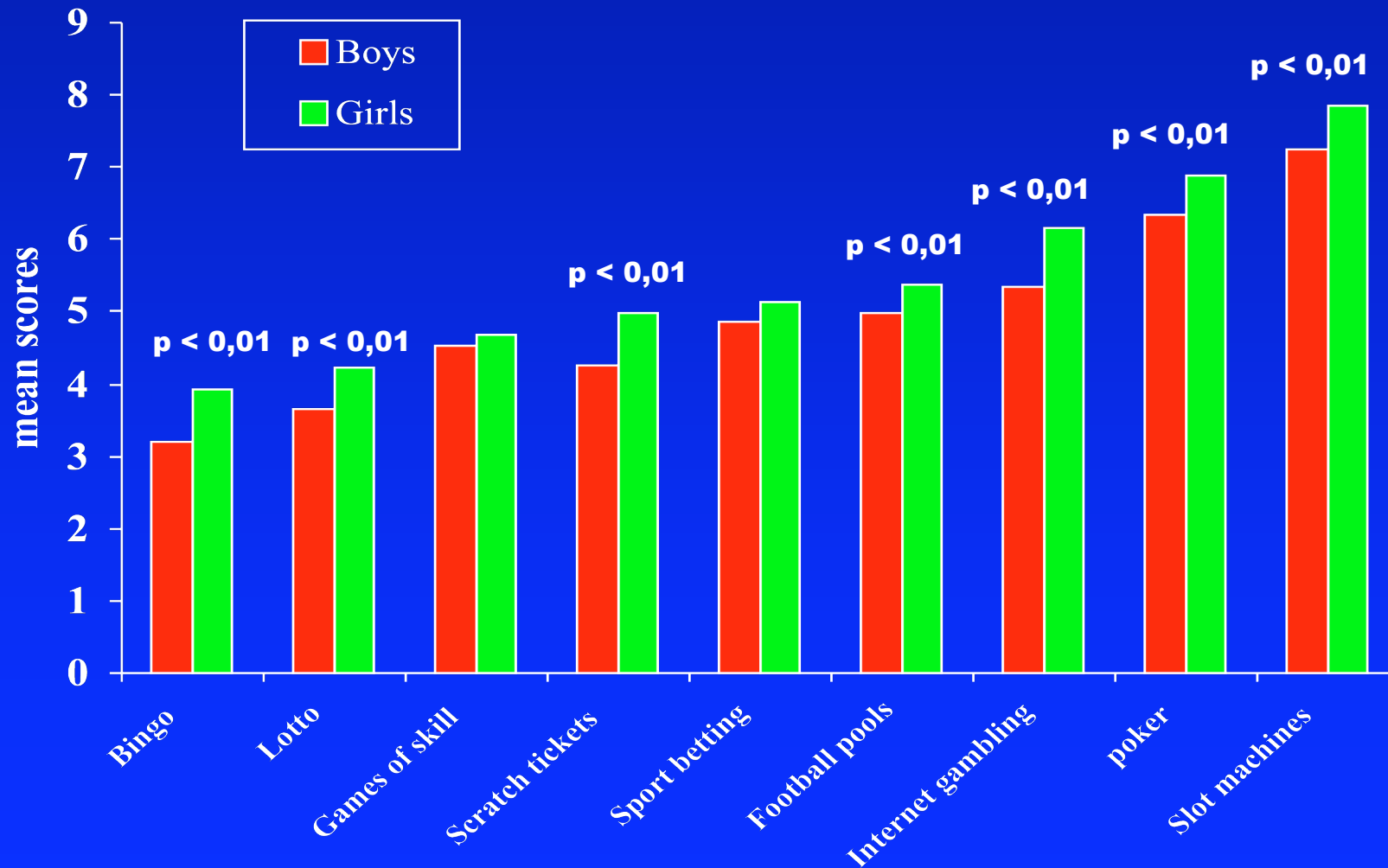
# Results of the multivariate analysis

	Youth II 13-15 years		Youth III 16-18 years	
	<i>Wald test</i>	<i>OR</i>	<i>Wald test</i>	<i>OR</i>
Gender at step 1	18,149**	6,429	11,646**	12,207
Lotto	0,401	0,691	1,111	2,346
Gambling machines	4,291*	2,238	6,668**	4,660
Scratch-tickets	2,854	1,975	3,257	3,350
Games of skill	2,474	1,926	0,536	0,661
Football pools	0,71	1,67	0,628	0,537
Sport betting	0,60	1,415	3,206	4,066
Card games/poker	6,234**	2,882	12,875**	7,718
Bingo	2,809	3,469	3,681	5,439
Internet gambling	0,80	1,667	3,059	2,513
ADHD symptoms	13,824**	4,545	6,653**	4,237
Cognitive Distortion	9,299**	1,175	1,166	1,087
Depression symptoms	18,048**	1,066	6,247**	1,052

# Youth III: Risk assessment



# Youth III: Risk assessment by gender



## Other correlates

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- Problem gamblers were more likely to remember a **big win** at the start of their gambling!
- Problem gamblers were more likely to report **relatives** and **friends** gambling and with gambling problems!
- Problem gamblers were more likely report more difficulties in school, **lower grades and truancy**.

## Summary and conclusion

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- The most interesting finding from the logistic regression is that card games and gambling machines are the most important risk factors of gambling types for problem gambling in Iceland.
- These results concur with research findings from other countries that suggest that games with an element of continuity, skill or perceived skill are potentially more addictive than non-continues pure chance games such as lotteries (Dowling, Smith & Thomas, 2005; Griffiths, 1999; Griffiths & Wood, 2004; Productivity Commission, 1999).
- Further support for the addictive potential of gambling machines is that they seem to be predominantly reported as problematic in self-help groups and treatment centers in the world (Becona, 1996; Griffiths, 1995; 1999; Griffiths & Wood, 2000; 2004).

## Summary and conclusion continued

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- Measurements of current ADHD symptoms do not qualify as a formal diagnosis for ADHD (American Psychiatric Association, 2000). Still our results suggest that current symptoms of ADHD are an important risk factor of problem gambling.
- This concurs with a number of studies that show that ADHD impairs a number of major life activities. Children with ADHD disorder commonly have academic performance problems and drop out of school much earlier than their peers (e.g. Barkley et al., 2006; Conners & Erhardt, 2001; Mannuzza et al., 1997).
- They are also more likely to engage in antisocial activities (steal, truancy, and aggression towards persons or animals), to use tobacco, alcohol and illegal drugs to a greater degree than other children (Conners & Erhardt, 2001).

## Summary and conclusion still continued

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- The overlap between problem gambling and ADHD among adolescents is therefore not surprising, as problem gambling has also been shown to correlate with antisocial behavior, drug use and educational deficiencies (Gupta & Derevensky, 1998; Ladoceur et al., 1999; Olason et al., 2006; Stinchfield, 2004).
- Further, impulsivity is a core feature of ADHD disorder (along with attention deficits and hyperactivity) and a number of studies among both adults and adolescents have identified impulsivity as an important risk factor for problem gambling (e.g. Specker et al., 1995; Steel & Blaszczynski, 1998; Vitaro, et al., 1998).
- It is therefore plausible that ADHD acts as a general risk factor for a number of deviant behaviors among adolescents, including problem gambling!

# Concerns- On-line gambling!

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*"Dude, I know my building is on fire, but I'm gambling online, and I'm on a winning streak. I can't leave now."*