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Problem gambling in Europe: An overview

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Contents

<i>Executive summary</i>	3
<i>Glossary of acronyms used in the report</i>	6
<i>Report background, context and methodology</i>	7
<i>Country by country reports (alphabetical order)</i>	10
- Austria	10
- Belgium	12
- Bulgaria	14
- Cyprus	14
- Czech Republic	15
- Denmark	15
- Estonia	16
- Finland	18
- France	20
- Germany	22
- Great Britain	24
- Greece	32
- Hungary	33
- Iceland	35
- Ireland	38
- Italy	39
- Latvia	41
- Lithuania	41
- Luxembourg	43
- Malta	43
- The Netherlands	44
- Norway	47
- Poland	50
- Portugal	50
- Romania	51
- Russia	52
- Slovakia	53
- Slovenia	54
- Spain	55
- Sweden	58
- Switzerland	60
<i>Conclusions</i>	61
<i>References</i>	67
<i>Appendix: Brief author biography</i>	85

Executive Summary

- This report provides a European country-by-country analysis of the known empirical (and in some cases anecdotal) evidence of gambling and problem gambling in that particular country.
- In Europe, gambling is a diverse concept that incorporates a range of activities undertaken in a variety of settings and giving rise to differing sets of behaviours and perceptions among participants and observers.
- In absolute terms, European Member States with the largest populations are the greatest gamblers. In terms of Gross Gambling Revenues (GGR), Great Britain has the highest at €11 billion (i.e., amounts staked less money returned to players). This is followed by Germany (€8.4 billion), France (€7.6 billion), Italy (€6.2 billion) and Spain (€4.9 billion). However, the size of population does not have much to do with propensity to gamble. The highest gambling countries by GGR are Ireland (€279 per year per person), Finland (€239), Luxembourg (€194), Great Britain (€181), and Sweden (€176). All of these (bar Great Britain) have small to medium size populations among the member states.
- The information reviewed in this report relating to gambling and problem gambling in each country broadly fell into one of three categories:
 - Countries that have carried out national surveys on gambling and/or problem gambling of varying representativeness, quality and empirical rigour (i.e., Belgium, Denmark, Estonia, Finland, Germany, Great Britain, The Netherlands, Lithuania, Sweden and Switzerland).
 - Countries that have carried out research on gambling and/or problem gambling of varying representativeness, quality and rigour but at a regional and/or local level rather than a national level (i.e., Austria, France, Hungary, Romania, Russia, Slovakia, Slovenia and Spain).
 - Countries where almost nothing is known empirically about gambling and/or problem gambling (i.e., Bulgaria, Cyprus, Czech republic, Greece, Ireland, Latvia, Luxembourg, Malta, Poland and Portugal).
- European research has consistently shown that problem gambling can negatively affect significant areas of a person's life, including their health, employment, finances, and interpersonal relationships. In addition, there are significant co-morbidities with problem gambling, including depression, alcoholism, and obsessive-compulsive behaviours. These co-morbidities may exacerbate, or be exacerbated by, problem gambling. Availability of opportunities to gamble and the incidence of problem gambling within a community are known to be linked.
- Among adults, lotto is the most popular adult game in most European countries. Among adolescents, the trend seems to be that wherever commercial games (such as

the lottery or slot machines) are widely available, adolescents increase their participation even though in most jurisdictions they may not be legally permitted to play these games.

- Problem gambling rates in Europe appear to be similar to rates found elsewhere (typically 0.5%-2%), although a few countries (e.g., Estonia, Finland, Switzerland) have reported problem gambling prevalence rates of above 3%.
- Relatively few studies in Europe report prevalence rates for probable pathological gambling but the results from these studies suggest broadly similar rates. For example, the current prevalence rates of probable pathological gambling (scoring 5 or more on the DSM-IV) in Great Britain was 0.3%, in Sweden 0.3%, in Iceland 0.6%, in Norway 0.3% and in Denmark 0.1%.
- Results from studies in different European countries suggest that problem gambling among adolescents is considerably higher than among adults. Although problem gambling among adolescent samples tends to be higher than in adult samples, many of the participants used in these studies are either local surveys and/or use opportunistic or non-representative samples. However, in countries where there have been large samples with good representation (e.g., Great Britain), the problem gambling prevalence rate among adolescents is at least four to five times higher than in the adult population.
- In terms of problem gambling by type of gambling, there appear to be some consistent trends across European jurisdictions that have done research. Prevalence studies in Europe have tended to report that problem gamblers are most likely to be electronic gaming machine (EGM) players including Estonia, Germany, Holland, Norway, Sweden and Switzerland. Other studies have also found similar results with adolescents reporting that the main type of problem gambling among adolescents is related to EGM play (e.g., Great Britain, Iceland and Lithuania).
- Furthermore, statistics from problem gambling helpline data show a growing proportion of problem gamblers contacting helplines or assessing treatment are identifying EGMs as their primary form of gambling. Many European countries reported that problem EGM gamblers were most likely to seek treatment and/or contact national gambling helplines including 60% of gamblers seeking help in Belgium, 72% in Denmark, 93% in Estonia, 66% in Finland, 49.5% in France, 83% in Germany, 45% in Great Britain, 75% in Spain, and 35% in Sweden.

Table A: Summary of country-by-country data

<i>Country</i>	<i>Gambling prevalence</i>	<i>Most popular gambling activities</i>	<i>Problem gambling prevalence</i>	<i>Instrument</i>	<i>Quality of data</i>
Austria	Not known	Lotteries (?) Slot machines (?)	Not known	-	Poor
Belgium	60% (past year)	Lotteries Scratchcards	2% (past year)	DSM-IV	Medium
Bulgaria	Not known	Not known	Not known	-	Poor
Cyprus	Not known	Not known	Not known	-	Poor
Czech Republic	Not known	Not known	Not known	-	Poor
Denmark	[Not reported]	[Not reported]	1.7% (lifetime) 0.7% (lifetime)	SOGS-RA NODS	Medium
Estonia	75% (past year)	Lotteries Slot machines	6.5% (past year)	SOGS	Medium
Finland	74% (past year)	Lotteries Scratchcards	5.5% (past year)	SOGS-R	Good
France	50% (approx – past year)	Horse racing Lotteries/Rapido	Not known	-	Poor
Germany	39% (past year)	Lotteries Scratchcards	1.2% (past year)	DSM-IV	Good
Great Britain	68% (past year)	Lotteries Scratchcards	0.6% (past year) 0.5% (past year)	DSM-IV CPGI	Good
Greece	Not known	Sports betting Lotteries	Not known	-	Poor
Hungary	19% (monthly)	Lotteries	7% (“heavy gamblers”)	-	Poor
Iceland	69% (past year)	Lottery Scratchcards	1.1% (past year)	DSM-IV	Good
Ireland	59% (past year lottery)	Lotteries Sports betting	Not known	-	Poor
Italy	80% (past year)	Lotteries	Not known	-	Poor
Latvia	Not known	Not known	Not known	-	Poor
Lithuania	30% (lifetime)	Sports betting Slot machines	Not assessed	[None used]	Poor
Luxembourg	Not known	Not known	Not known	-	Poor
Malta	54% (18-24 year olds - past year)	Lottery Scratchcards	Not known	-	Poor
The Netherlands	87% (lifetime)	Lottery Scratchcards	2.5% (lifetime)	SOGS	Good
Norway	[Not reported]	Lotteries Football pools	1.4% (lifetime)	NODS	Medium
Poland	60% (lottery past year)	Lotteries	Not known	-	Poor
Portugal	Not known	Slot machines (?)	Not known	-	Poor
Romania	Not known	Casinos (?)	Not known	-	Poor
Russia	75% (past year)	Lotteries Casinos	Not known	-	Poor
Slovakia	Not known	Slot machines Lotteries	Not known	-	Poor
Slovenia	Not known	Casinos (?)	Not known	-	Poor
Spain	[Not reported]	Slot machines Lotteries	0.9%-2.5% (Lifetime)	Various	Medium (localised)
Sweden	[Not reported]	Lotteries	2.0% (past year)	SOGS-R	Medium
Switzerland	[Not reported]	Lotteries	3.3% (lifetime)	SOGS	Poor

Glossary of acronyms used in the report

CPGI	Canadian Problem Gambling Index
DSM-III	Diagnostic and Statistical Manual (Third Edition)
DSM-III-R	Diagnostic and Statistical Manual (Third Edition - Revised)
DSM-IV	Diagnostic and Statistical Manual (Fourth Edition)
DSM-IV-J	DSM-IV Junior Version
DSM-IV-MR-J	DSM-IV Junior Multiple Response Version
EGM	Electronic Gaming Machine
FOBT	Fixed Odds Betting Terminal
GGR	Gross Gambling Revenue
GA	Gamblers Anonymous
GA-20	Gamblers Anonymous 20 Questions
ICD-10	International Classification of Diseases (Tenth Edition)
LBS	Lie/Bet Screen
NODS	National Opinion Research Center DSM Screen For Problem Gambling
PG	Problem gambling
PGSI	Problem Gambling Severity Index
SOGS	South Oaks Gambling Screen
SOGS-R	Revised South Oaks Gambling Screen
SOGS-RA	South Oaks Gambling Screen Revised for Adolescents
VLT	Video Lottery Terminal
YDQ	Young Diagnostic Questionnaire for 'Internet Addiction'

Problem gambling in Europe

Report background, context and methodology

Gambling is a diverse concept that incorporates a range of activities undertaken in a variety of settings and giving rise to differing sets of behaviours and perceptions among participants and observers (Abbott & Volberg, 1999). Predominantly, gambling has an economic meaning and usually refers to risking (or wagering) money or valuables on the outcome of a game, contest, or other event in the hope of winning additional money or material goods. The activity varies on several dimensions, including what is being wagered, how much is being wagered, the expected outcome, and the predictability of the event. For some things such as lotteries, most slot machines and bingo, the results are random and unpredictable. For other things, such as sports betting and horse racing, there is some predictability to the outcome, and the use of skills and knowledge (recent form, environmental factors, etc.) can give a person an advantage over other gamblers. Some of the most common types of offline commercial forms of gambling are summarised in Table 1.

As can be seen from Table 1, gambling is commonly engaged at a variety of environments including those dedicated primarily to gambling (e.g., betting shops, casinos, bingo halls, amusement arcades), those where gambling is peripheral to other activities (e.g., social clubs, pubs, sports venues), and those environments where gambling is just one of many things that can be done (e.g., supermarkets, post offices, petrol stations, etc.). Furthermore, most types of gambling can now be engaged in remotely via the Internet, interactive television and/or mobile phone. This includes playing roulette or slot machines at an online casino, the buying of lottery tickets using a mobile phone or the betting on a horse race using interactive television. In these remote types of gambling, players use their credit cards, debit cards or other electronic forms of money to deposit funds in order to gamble (Griffiths, 2005a).

Problem gambling: Problem gambling can negatively affect significant areas of a person's life, including their health, employment, finances, and interpersonal relationships (Griffiths, 2004). In addition, there are significant co-morbidities with problem gambling, including depression, alcoholism, and obsessive-compulsive behaviours. These co-morbidities may exacerbate, or be exacerbated by, problem gambling. Availability of opportunities to gamble and the incidence of problem gambling within a community are known to be linked (Griffiths, 2003a; Abbott, 2007).

The terms 'problem gambling' and 'pathological gambling' (often used interchangeably) have been used by many researchers, bodies, and organisations, to describe gambling that compromises, disrupts or damages family, personal or recreational pursuits (Budd Report, 2001; Griffiths, 2004; Sproston *et al*, 2000; Wardle *et al*, 2007). The two most widely used screening instruments worldwide are the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) for pathological gambling (American Psychiatric Association, 1994), and the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987).

Table 1: A summary of the most common forms of offline commercial gambling in Europe (Adapted from Griffiths [2009])

Type of gambling	Brief description
<i>Lotto</i>	National lottery game where players pick 6 out of 49 numbers to be drawn bi-weekly for the chance to win a large prize. Tickets are bought in a wide variety of outlets including supermarkets, newsagents, petrol stations, etc.
<i>Bingo</i>	A game of chance where randomly selected numbers are drawn and players match those numbers to those appearing on pre-bought cards. The first person to have a card where the drawn numbers form a specified pattern is the winner. Usually played in bingo halls but can be played in amusement arcades and other settings (e.g., church hall).
<i>Card games (e.g., poker, blackjack)</i>	Gambling while playing card games either privately (e.g., with friends) or in commercial settings (e.g., land-based casino) in an attempt to win money.
<i>Sports betting</i>	Wagering of money on horse races, greyhound races, football matches, etc. usually in a betting shop in an attempt to win money.
<i>Non-sports betting</i>	Wagering of money on a non-sporting event (such as who will be evicted from the 'Big Brother' house) usually done in a betting shop in an attempt to win money.
<i>Scratchcards</i>	Instant win games where players typically try to match a number of winning symbols to win prizes. These can be bought in the same types of setting to Lotto.
<i>Roulette</i>	Game in which players try to predict where a spinning ball will land on a 36-numbered wheel. This game can be played with a real roulette wheel (e.g., in a casino) or on an electronic gaming machines (e.g., in a betting shop).
<i>Slot machines (e.g., fruit machines, fixed odds betting terminals)</i>	These are stand-alone electronic gaming machines that come in a variety of guises. These include many different types of 'slot machine' (typically played in amusement arcades, family leisure centres, casinos, etc.) and fixed odds betting terminals typically played in betting shops.
<i>Football pools</i>	Weekly game in which players try to predict which football games will end in a score draw for the chance of winning a big prize. Game is typically played via door-to-door agents.
<i>Spread betting</i>	Relatively new form of gambling where players try to predict the 'spread' of a particular sporting activity such as the number of runs scored in a cricket match or the exact time of the first goal in a football match in an attempt to win money. Players use a spread betting agency (a type of specialised book maker).

Notes: [1] Most of these forms of gambling can now be done via other gambling channels including the Internet, interactive television and/or mobile phone. [2] There are other types of gambling such as dice (casino-based 'craps'), keno (a fast draw lottery games) and video lottery terminal machine. However, these are either unavailable or very rare in Europe [3]

Technically, activities such as speculation on the stock market or day trading are types of gambling but these are not typically viewed as commercial forms of gambling.

The terms ‘problem gambling’ and ‘pathological gambling’ (often used interchangeably) have been used by many researchers, bodies, and organisations, to describe gambling that compromises, disrupts or damages family, personal or recreational pursuits (Budd Report, 2001; Griffiths, 2004; Sproston *et al*, 2000; Wardle *et al*, 2007). The two most widely used screening instruments worldwide are the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) for pathological gambling (American Psychiatric Association, 1994), and the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987).

There have been criticisms of both the DSM-IV and the SOGS. In part, these criticisms stem from an acknowledgment that both screens were designed for use in clinical settings, and not among the general population, within which large numbers of individuals with varying degrees of problems reside. A range of alternative screens have been developed, and these are increasingly being used internationally (Abbott, Volberg, Bellringer & Reith, 2004). One such screen is the Problem Gambling Severity Index (PGSI), which was developed in Canada and has been used in that country, the US, UK and Australia.

Gambling in Europe: Young (2007) overviewed who gambles most in Europe and reported that in absolute terms. Predictably, the Member States with the largest populations were the greatest gamblers (see Table 2). In terms of Gross Gambling Revenues (GGR) Great Britain has the highest at €11 billion (i.e., amounts staked less money returned to players). This is followed by Germany (€8.4 billion), France (€7.6 billion), Italy (€6.2 billion) and Spain (€4.9 billion). However, as Young (2007) points out, the size of population does not have much to do with propensity to gamble. Only Great Britain of the five biggest member states by population is in the top five for gambling expenditure per capita (4th overall).

Table 2: Top gambling forms in specified Member States by country size and Gross Gambling Revenue (GGR).

<i>Top five countries ranked by population</i>	<i>Top gambling forms</i>
(1) Germany	Lotteries and gaming machines
(2) France	Lotteries and casinos
(3) Great Britain	Betting and lotteries
(4) Italy	Lotteries and betting
(5) Spain	Gaming machines
<i>Top five countries ranked by GGR per capita</i>	
(1) Ireland	Betting and lotteries
(2) Finland	Gaming machines and lotteries
(3) Luxembourg	Casinos (possibly)
(4) Britain	Betting and gaming machines
(5) Sweden	Lotteries and betting

The highest gambling countries by GGR are Ireland (€279 per person), Finland (€239), Luxembourg (€194), Great Britain (€181), and Sweden (€176). All of these (bar Great Britain) have small to medium size populations among the member states. Measured by gambling per capita, France and Spain are equal 9th equal, Italy is 12th and Germany is 13th. It should also be noted that Malta actually tops the list of per capita gambling spend (€282) but was excluded from the analysis as it operates a tax régime that is aimed at attracting offshore gambling. As noted in Table 2, lotteries are popular throughout Europe but in general gambling preferences are not uniform. Young (2007) also notes that the spread of gambling expenditure per capita is even wider than Table 2 implies. The lowest recorded gambling expenditure in the member states is Poland (€11 per annum per person).

Country by country reports (in alphabetical order)

The main part of this report provides a country-by-country analysis of the known empirical (and in some cases anecdotal) evidence of gambling and problem gambling in that particular country. The report concludes with a more wide ranging analysis examining some of the emerging themes. It should also be noted that some of the countries included are not EU members (e.g., Iceland, Norway, Russia) but it was felt by the author that these particular countries had useful information to include in the European context. The information collated relating to each country broadly falls into one of the following three categories:

- Countries that have carried out national surveys on gambling and/or problem gambling of varying representativeness, quality and empirical rigour (i.e., Belgium, Denmark, Estonia, Finland, Germany, Great Britain, The Netherlands, Lithuania, Sweden and Switzerland).
- Countries that have carried out research on gambling and/or problem gambling of varying representativeness, quality and rigour but at a regional and/or local level rather than a national level (i.e., Austria, France, Hungary, Romania, Russia, Slovakia, Slovenia and Spain).
- Countries where almost nothing is known empirically about gambling and/or problem gambling (i.e., Bulgaria, Cyprus, Czech republic, Greece, Ireland, Latvia, Luxembourg, Malta, Poland and Portugal).

Austria

To date, there have been no prevalence studies on the number of problem gamblers in Austria (Horodecki, 2009). The only institution in Austria that specialises in the treatment of problem gamblers is *Spielsuchthilfe* in Vienna. It offers counselling and therapy for gamblers and their families (although other more general addiction clinics also treat gambling addiction). *Spielsuchthilfe* estimates there to be 1.5% of pathological gamblers and 3% problem gamblers in the adult population of Austria (Horodecki, 2009). *Spielsuchthilfe* collects basic client data of all of the problem gamblers they treat. In 1991, they saw 449 people (233

problem gamblers and 216 relatives of problem gamblers). The figure has gradually risen almost every year since then and in 2007, the number of clients reached 888 (585 problem gamblers and 303 relatives of problem gamblers) (Horodecki, 2009).

Of the 585 problem gamblers who sought treatment in 2007, 84% were male and 16% were female (with the numbers of female problem gamblers increasing from 7% in 1986). The majority of those seeking treatment were Austrian nationals (70%). With regard to marital status, 56% married/living in a relationship, 25% single, 12% divorced, 5% living separately, and 2% widowed. In relation to educational attainment, 18% had primary school education, 52% apprenticeship, 18% final secondary-school examinations, 6% university degree, and 9% were currently having a break in their education. At the time of entering treatment, 64% were employed, 21% unemployed, 9% pension, 3% under arrest, and 2% in education. The most commonly reported consequences as a direct result of gambling were debts (84%), unemployment (22%), relationship problems (48%), loss of accommodation (10%), crime committed to finance the addiction (16%), criminal conviction (8%), suicidal thoughts/suicide attempt (16%), personality changes (30%), and psychosomatic problems (21%).

Table 3: Types of gambling engaged in by problem gamblers attending the only Austrian treatment centre (n=585) in 2007 (multiple answers permitted)			
Type of gambling that causes problems	Gamblers in 2007	Females 2007	Males 2007
Slot machines (non-casino)	84%	82%	84%
Slot machines at casinos	13%	24%	11.5%
Roulette	21%	23%	21%
Card games	14%	6%	15%
Betting	14.5%	0%	17%
Lottery	4%	5%	4%
Sweepstakes	1%	0%	1.5%
Scratch and break-open tickets	2%	1%	2%
Internet gambling	9%	12%	8%
Gambling on the stock market	1%	0%	1%
Pathological use of internet and computer	1%	2.5%	1%

Table adapted from Horodecki (2009)

The client's primary diagnosis was 86% pathological gambling (ICD-10 and DSM-IV) and 14% problem gambling (some of the criteria of ICD-10 and DSM-IV apply). These clients also had various co-morbidities including drug abuse (29%) affective disorders (19%), 6% neuroticism and other stress-related disorders (6%), personality disorders (5%) and schizophrenia (2%). A third of the clients had relatives who had formerly been addicted to

drugs or to gambling (32%) and 8% had relatives who were currently addicted to drugs or to gambling. A large minority (40%) began gambling before the age of 18 years with most (53%) starting between the ages of 19 and 40 years. The most popular gambling activity by problem gamblers was (by some margin) non-casino slot machines (84%) (see Table 3 for a full breakdown).

Belgium

A recent overview by Druine (2009) noted that there was only a small amount of empirical data on gambling participation and problem gambling in Belgium. Furthermore, these gambling statistics often are somewhat incomplete and unclear. A recent telephone interview prevalence study by Druine *et al* (2006) examined gambling behaviour and the prevalence of gambling problems within a representative sample of 3,002 randomly selected Belgians (aged 16- to 99-years of age). In comparison to other countries in this report, gambling participation in the past year by Belgians was relatively low with 60% of the respondents having participated in at least one gambling activity within the past year, and 26% having gambled on a regular basis (i.e., weekly or more frequently). The most popular forms of gambling in Belgium were lotteries (46% had gambled in the past year), scratch tickets (39%), and television phone-in quizzes (12%). Other gambling activities were not so popular with 2.6% of participants playing on gambling machines, 2% playing on casino table games, and 2.9% engaged in sports betting through newspaper shops or betting offices.

This study also noted some demographic variations in gambling preferences. There was no overall gender differences with gambling overall but men were more likely than women to gamble on slot machines, casino table games, bingo machines in pubs, sports betting, horse race betting, card games and dice games. Women are more likely than men to gamble on scratch tickets and television phone-in quizzes. Young adults (under the age of 25 years) were more likely to gamble on slot machines, bingo machines in pubs, sports betting through newspaper shops and betting offices, card games, dice games, and television phone-in quizzes. Respondents were also screened for gambling problems using the multiple response version of DSM-IV (Fisher, 2000). Results showed that 1.6% scored as past-year 'at risk gamblers' and 0.4% as past-year 'probable pathological gamblers'.

The study also highlighted that some socio-demographic groups were more vulnerable to developing gambling problems than others. Problem gambling was more prevalent among men than among women (although this was not statistically significant). Problem gambling was significantly higher among young people (aged 16- to 24-years), single people, and people from the lowest socio-economic social groups. Past-year gambling prevalence rates were higher among Belgian participants who had gambled on offline sports betting, betted on horse races (online and offline), gambled on slot machines, or gambled at casinos. However, the authors note that the study was unable to identify which gambling activities was the cause of the problems. The study also reported that problem gamblers were more likely to have participated in various types of gambling, including scratch tickets, television phone-in quizzes, betting, slot machines, Internet gambling, casino table games, and horse race betting.

There has also been some research into adolescent gambling as part of a wider study of youth habits (e.g., drug use) in 38,357 individuals (aged 12- to 18-years old). This survey by Kinable (2006) examined the participation in various gambling activities (e.g., slot machines, lotteries, card games, and betting). Results showed that two-fifths of the adolescents (40%) had gambled during their lifetime on at least one of the four gambling activities. During the previous six years, participation rates on the four gambling activities have been decreasing each year (from 53% in 2001 to 42.2% in 2005).

Another indication of which gambling activities may be most problematic relate to which types of gamblers access treatment centres for gambling problems. In 2006, the Matt Talbot treatment centre (in Antwerp) had data on 662 gamblers. The most popular gambling activities among this group of problem gamblers were bingo machines (60%), National Lottery and scratch tickets (28%), slot machines (26%), card games (14%) and casino gambling (11%). These data indicate that gambling machines constitute the major form of problem gambling.

Another face-to-face interview study by Minet *et al* (2004a; 2004b) also provided data on the potential addictiveness of certain Belgian gambling forms. In this study, 678 gamblers (72% men, 27% women; mean age 46 years) were recruited at five different gambling venues (casinos, gaming arcades, pubs offering bingo machines, lotto centres, and betting offices). Using the South Oaks Gambling Screen (Lesieur & Blume, 1987), 14% were classified as at-risk gamblers and 14 % were classified as probable pathological gamblers. The prevalence rates of problem gambling were highest at gambling venues offering continuous forms of gambling, such as casinos (19%), gaming arcades (23%) and pubs offering a bingo machine (20%) compared to lotto centres (3%) and betting offices (5%). However, the study did not indicate whether gambling problems were also associated to the gambling forms offered at these gambling venues. The study also reported that problem gamblers were more likely to be male, single, unemployed, and aged 26 to 45 years. Problem gamblers were also more likely to have parents with a history of problem gambling, and to have begun gambling at a younger age compared to gamblers having no or few gambling related problems. The study also found relationships between gambling and substances use. Among problem gamblers, 20% had alcohol problems and 72% were daily smokers.

Internet gambling: The prevalence study also reported that Internet gambling is – at present – not very popular in Belgium (Druine *et al* 2006). Results showed that only 1.5% of the participants have gambled with money on the Internet in the past year with 0.4% engaging in Internet gambling regularly (at least once a week). Internet gamblers were more likely to be male, under the age of 35 years, and single/unmarried/living together.

Since the study had only 45 Internet gamblers, a further 237 online gamblers were interviewed via an online survey. Within this total sample of Internet gamblers (n=282; mean age 38 years; 54% males), just over one-third of them (37%) indicated they gambled regularly online (once a week or more). Male online gamblers were more likely than females to participate in online betting. Female online gamblers were more likely than males to participate in gambling on online slot machines, online lotteries, and online scratch tickets. Compared to the non-online gamblers (n=1,750; mean age 43.25 years; 43% males), online players gambled more frequently with a greater propensity to encounter gambling-related

harm. Online gamblers were more likely to be problem gamblers than non-online gamblers (13% online gamblers versus 3% of non-online gamblers).

Bulgaria

Despite an extensive search of the academic literature and other Internet databases, there is almost nothing known empirically about gambling and problem gambling in Bulgaria. Country reports on gambling typically highlight the number of gambling outlets and opportunities (e.g., 15,400 gaming machines in Bulgaria) rather than any information on gambling participation (e.g., Bulgarian Trade Association of the Manufacturers and Operators in the Gaming Industry, 2008). There are a number of journalistic reports highlighting that the Bulgarian government are planning to put together a national gambling programme to boost the tourism industry including a number of hotel casinos in Sofia (Property Wire, 2008). Eastern Europe (including Bulgaria) has become a place of interest for gaming experts, especially after the acceptance of many countries from the region into the European Union. The growth in the gaming sector (20% in 2007 in Bulgaria), together with the introduction of stricter legal and regulatory environment, and stabilisation in the economic climate made the countries in the region an attractive place for business. As one of the first countries in Eastern Europe to regulate the gaming and implement reliable legal frame, Bulgaria has already become one of the well-established gaming markets. There are certainly documents available suggesting gambling addiction is an issue in Bulgaria such as those written by the State Gambling Commission (2008) which highlight measures to prevent problem gambling occurring in the first place. Hopefully, this will lead to empirical research being carried out on Bulgarian gambling participation and problem gambling.

Cyprus

Despite an extensive search of the academic literature and other Internet databases, there is almost nothing known empirically about gambling and problem gambling in Cyprus. There has been one anthropological report by Scott (2001) whose research in northern Cyprus's casino sector was undertaken as part of a wider project looking at diversity and sustainability in tourism development. She says that *"In addition to fears that the casinos would lead to increased crime and [increased] rates of problem gambling (the anecdotal evidence for which is so far unverified by definitive research [Scott, 2000]), critics of the casinos identified a number of negative impacts on existing tourism and its future prospects"*. In short, there is no empirical evidence of any problem gambling in Cyprus.

According to *Online Casino City* (2008), the Cypriot government licenses online lotteries, betting exchanges, casino gaming and sports betting. Because of the apparent increase in gambling participation, in 2007, the Cypriot government began preparing a bill to impose a stricter set of rules for the licensing of online gaming in their country. However, previous bills have been submitted to Parliament and rejected. The goal of the new bill is to prevent underage children from participating in online gaming and to insure that the state does not suffer any losses in tax revenue. The exact nature of the rules that the government seeks to implement has yet to be determined. There is little known about gambling participation in Cyprus although residents are estimated to spend 93.2 million Cypriot pounds per year playing the lottery (World Gambling Review, 2008). There are also reports that Cypriots

gambled more than £28 million over the Internet in 2006, according to figures presented to the House Institutions Committee of Cyprus, by credit card company JCC. However, other estimations believe the figure is closer to £1.5 billion (*What Casino*, 2007). Although there have been high profile cases of gambling addiction in Cyprus such as the recent case of a 38-year-old bank employee in Nicosia embezzling €2.3million because of his problem gambling (*Cyprus Weekly*, 18/12/2008), there are no empirical reports on problem gambling.

Czech Republic

Despite an extensive search of the academic literature and other Internet databases, there is almost nothing known empirically about gambling and problem gambling in the Czech Republic. The Gambling Compliance website (<http://www.gamblingcompliance.com>) reports that there are around 230 casinos in the country, 47 of which are licensed. There are also 400 lottery and betting firms. The same report also reported there were more than 50,000 slot machines equating to 1 for every 200 residents, making the Czech Republic the highest casino per capita jurisdiction in the EU.

A web report from 2005 claims betting over the telephone or the Internet is rapidly gaining in popularity among Czech punters but does not say where the information comes from (*Casino City Times*, 2005). According to the *Casino City Times* report, since 2000, the gambling industry in the Czech Republic has been growing. According to the Finance Ministry, in 2004, Czechs spent a record 84.6 billion crowns on legal betting (8.5 percent increase on 2003).

Denmark

A recent overview by Linnet (2009) notes that a number of anthropological and sociological studies have focused on the cultural aspects of gambling, including field studies of gambling locations, life-style, motivation, and ethnic sub-groups (Bonke, 2005; Curtis, 2005; Hildebrandt-Eriksen, 2003; Jansbøl, 2005). In 2005, the Ministry of Taxation initiated a prevalence study of problem gambling in Denmark. The first part of the study (Bonke & Borregaard, 2006) consisted of a telephone survey of over 8,000 participants (n=8,153; 70% response rate; aged 18- to 74-years). The study used two diagnostic screening questionnaires – the revised version of the South Oaks Gambling Screen (Lesieur & Blume, 1993), and the National Opinion Research Center DSM Screen for Gambling Problems (NODS) (Gerstein *et al.*, 1999). Both measure lifetime prevalence and past-year prevalence of gambling.

The Danish prevalence study reported a lifetime prevalence of pathological gambling at 0.3%, 0.4% for problem gamblers, and 3.2% for ‘at risk’ gamblers, for a combined lifetime prevalence of 3.9% (Bonke & Borregaard, 2006). Past-year prevalence in Denmark was 0.14% for pathological gamblers, 0.3% for problem gamblers, and 1.9% for at risk gamblers. The largest difference in reported prevalence between SOGS-R and NODS was found among at risk gamblers, where SOG-R showed a three-fold prevalence over the NODS. Approximately twice as many pathological gamblers were found using the SOGS-R compared to the NODS, and 2-3 times as many problem gamblers were found using SOGS-R.

An examination of individual gambling activities showed that problem and at risk gamblers had 5-8 times higher use of slot machines, 5-15 times higher use of poker and dice games, and 5-12 times higher use of sports betting and betting with non-Danish bookmakers. In contrast, no differences were found in the use of scratchcards or lottery tickets. This concurs with information from Danish treatment centres that report that those who seek treatment are most frequently addicted to slot machines with sports betting and poker or casino games ranking second and third (Hansen, 2006).

Examination of the socio-demographic factors associated with problem or at risk gambling showed that males were five times as likely to be at risk or problem gamblers than females, and individuals in the top 25% income bracket were 40% less likely to be problem or at risk gamblers. Younger individuals (aged 18-44 years) were 5–50 times more likely to be problem gamblers or at risk gamblers than older individuals (aged 45 – 64 years). In summary, the study highlights that individuals at risk for developing problem or pathological gambling are single young men with lower incomes. This is very similar to clinical studies in Denmark such as those by Nielsen and Røjskjær (2005) who examined the characteristics of 459 pathological gamblers in treatment at the Center for Ludomani. Their results showed that significantly more men (84%) than women (16%) sought treatment, and that treatment-seeking women were significantly older than men. Female problem gamblers had more depressive symptoms and were more likely both to have had suicidal thoughts (73% women versus 56% men) and suicidal attempts (33% women versus 14% men).

Treatment centres for gambling problems in Denmark first opened in 1992 (Linnet, 2009). At present, the Center for Ludomani is the largest treatment centre in Denmark. The main centre is in Odense (opened in 1996), with other centres in Copenhagen (2001) and Aarhus (2004). Treatment-seeking pathological gamblers most frequently report problems in relation to slot machines (72%), sports betting (33%), and casino gambling (26%) (Linnet, 2009).

The structural characteristics of a game, (i.e., the different elements that make up the game), may influence the degree to which gambling behaviour is reinforced as well as the risk of developing problem or pathological gambling. A few Danish studies have examined the structural characteristics of slot machines and poker (Linnet, 2009; Møller, 2005). For instance, the study by Møller (2005) compared gambling behaviour between slot machine addicted gamblers and non-gambling controls on one of the most popular Danish slot machines. Preliminary results suggest that pathological gamblers gamble longer on the slot machines, are more excited from gambling, and have stronger desire to continue gambling than controls. It was also reported that pathological gamblers with depressive symptoms appear to show exacerbated symptoms compared with pathological gamblers without depressive symptoms.

Estonia

A recent overview of gambling in Estonia by Laansoo and Niit (2009) noted that there have been only two gambling prevalence surveys conducted in Estonia (i.e., Faktum, 2004; Laansoo, 2006). The first study examined the extent of gambling in the Estonian population and examined the characteristic risk factors of problem gamblers. The second study attempted to examine trends in problem gambling (i.e., was problem gambling growing or

diminishing in Estonia²). It also examined gamblers' abilities to manage the running of their day-to-day lives, the links between gambling, the willingness to take risks, and the use/abuse of alcohol.

Both surveys were carried out using an omnibus survey conducted by a marketing research company. The target population of the survey was made up of permanent residents of Estonia. The participants were aged between 15- to 74-years of age (mean age 46 years in 2004; mean age of 42 years in 2006; 53% female and 47% male). A total of 1,000 Estonians participated in the 2004 survey, and 2,005 Estonians participated in the 2006 survey. The screening instrument used for assessing pathological gambling was the Estonian version of the SOGS (Laansoo & Niit, 2004).

In the 2004 study, 61% of the participants had gambled, 2.6% were classed as potential problem gamblers and 2.4% were classed as probable pathological gamblers. In the 2006 study, 75% of the participants had gambled, 3.1% were classed as potential problem gamblers and 3.4% were classed as probable pathological gamblers. In comparing the results of the two surveys, Lansoo and Niit (2009) concluded there had been an increase in both the number of potential pathological gamblers and the number of probable pathological gamblers. The authors also concluded that in comparison to survey results in other countries, Estonia has the highest rates of prevalence for both the number of probable pathological gamblers as well as potential pathological gamblers

In the second survey, three-quarters of respondents (75%) had been involved in one or more types of gambling. Lottery games were the most popular (72%) among the population. Next in popularity was playing on slot machines (19%), playing cards for money (15%), sports betting (7%), casino games (6%), Internet gambling (2%) and horse race betting (2%). Men and women gambled to an equal extent although their preferences for gambling differed. Compared to females, men were more likely to play lotteries (72% versus 70%), slot machines (26% versus 12%), playing cards (25% versus 6%), and casino games (11% versus 2%). Results also showed that the younger the respondents, the greater the amount of gambling. Among the 15-19 year age group the gambling participation rate was 86%. This was 85% in the 20-29 year age group, 83% in the 30-39 year age group, 80% in the 40-49 year age group, 69% in the 50-59 year age group, and 50% in the 60-74 year age group.

Further analysis was carried out on Estonian problem gamblers. In both the 2004 and 2006 surveys, potential problem gamblers and probable pathological gamblers were more likely to be male (see Table 4). Probable pathological gambling in males increased from 1.9% to 2.9% whereas probable pathological gambling in females stayed constant at 0.5%. Probable pathological gambling was generally more prevalent in the young with prevalence of problem gambling highest in the 15- to 29-year age groups. However, there were no real differences between problem and non-problem gamblers in relation to education, social status and marital status.

Table 4: Gambling prevalence by gender in Estonia

SOGS Score 3-4		SOGS Score 5+	
2004	2006	2004	2006

Males	2.1%	2.3%	1.9%	2.9%
Females	0.5%	0.8%	0.5%	0.5%

Table adapted from Lansoo and Nijt (2009)

The study also showed that there were more problem gamblers among higher income groups. However, it was also noted by Lansoo that a large proportion of the risk groups had no income at all (e.g., students). Those participants who lived in cities were more likely than those who lived in the countryside to be problem gamblers although the most likely explanation of this would be in terms of access to gambling opportunity (i.e., those that lived in cities had far greater access to gambling than those that lived elsewhere).

The 2006 study also examined whether certain forms of gambling were more associated with problem gambling. Compared to female problem gamblers, male problem gamblers were more likely to be engaged in several different forms of gambling (i.e., lotteries, card games and slot machines). Female problem gamblers were most likely to play lottery games and nothing else.

Table 5: Gambling engagement among probable pathological gamblers by gender in 2006

	Lotteries*	Slot machines*	Playing cards*	Casino games*
Male problem gamblers (<i>n</i> = 59)	8%	17%	15%	26%
Female problem gamblers (<i>n</i> = 10)	1%	4%	8%	10%
All respondents (<i>n</i> = 1,936)	72%	19%	16%	6%

Table adapted from Lansoo and Nijt (2009)

Findings from the 2006 survey also found positive associations between problem gambling and alcohol abuse. The results showed that alcohol abuse was linearly associated with gambling, irrespective of a person's age, gender and gambling preference. Alcohol use was highest among problem gamblers. In summary, Lansoo and Nijt (2009) conclude that the risk profile of an Estonian problem gambler is a young impulsive male who prefers casino games and slot machines, lives in a city, consumes more alcohol than the average, and avoids his problems instead of solving them.

Finland

A recent overview by Jaakkola (2009) examining problem gambling in Finland noted that there had been very few studies. To date, there has been only one major prevalence study, one study on adolescent gambling, and a few smaller studies on problem gamblers, treatment and relatives of gamblers.. In the 1980s and 1990s there were a few gaming industry surveys, carried out by the Finnish Slot Machine Association (*RAY*) and the Lottery operator

(*Veikkaus*). For instance, Rautio (1988) examined the gambling behaviour of *Veikkaus* clientele (Rautio 1988) but this did not address problem gambling.

RAY commissioned a survey from Statistics Finland. The sample comprised 2,599 Finnish participants aged between 13- to 74-years (Virtanen, 1990). Results showed that 83% of Finns had gambled at least once in their lifetime, and that 3% gambled at least once a week. Although problem gambling was not addressed, it was reported that over 5% of gamblers felt they spent too much time or money in gambling.

In 2003, the first ever (and to date only) national gambling prevalence survey was carried out for Ministry of Social and Health by *Taloustutkimus Oy*'s market research company (Ilkas & Turja, 2003). The sample comprised 5,013 participants (aged 15- to 74-years) using computer assisted telephone survey (CATI). The survey comprised three major sections; (i) how often and how much people gamble, (ii) attitudes towards gambling-related problems and (iii) the prevalence of problem gambling. The prevalence of problem gambling was assessed using the Finnish version of the revised South Oaks Gambling Screen (SOGS-R).

Results indicated that three-quarters of Finns (74%) had gambled during the previous year. Under half (43%) gambled every week and just over one in ten Finns (12%) gambled more than once a week. Lotto games were most popular (89%), followed by instant lotteries/scratchcards, and non-casino slot machines (51%) (Ilkas & Turja, 2003). Among Finnish gamblers, 25% of them played slots once a week that is higher than most European countries where the average is around 5% (Valkama, 2006a).

In relation to problem gambling, findings using the SOGS-R indicated that 1.5% of Finns were probable pathological gamblers and that 4% were potential pathological gamblers. The participants were also asked whether they thought they had a gambling problem. Less than 1% said they did. Further analysis showed that problem gamblers spent significantly more money on gambling compared to those without a gambling problem and that problem gambling was most prevalent in young people. For instance, the prevalence rate of probable pathological gambling among those aged 15- to 24-years was 10%. It was also reported that problem gamblers were more likely to be those on low incomes. Among problem gamblers, the most popular form of gambling was slot machines. Almost 90% of problem gamblers played on slot machines although most of them gambled on other activities too.

The statistics of *Peluri*, the national gambling helpline appears to confirm some of the prevalence survey's findings (Jaakkola, 2009). Of the 1,500 problem gamblers who have contacted the helpline, young males are the most common type of person to make contact and they engage in various types of gambling. The main motives to gamble are typically for excitement and to gain money (Jaakkola, 2006). Female problem gamblers are typically middle or late middle aged, and almost 90% gamble on slot machines. Their motives for gambling are typically to escape from boredom, and to help cope with everyday stresses and strains (Jaakkola, 2006). Slot machines are the most common type of gambling among those who contact the gambling helpline and for two-thirds it is their most preferred form of gambling (66%). Betting on sports is the second most popular gambling activity.

There are also reports that Internet poker is popular in Finland. In late 2006, one report noted there were 30,000 active Internet poker gamblers in Finland with 80,000 Finns having

played it at least once during the last year (Valkama, 2006b). Both this report and the national gambling helpline statistics (Jaakkola, 2006) report that the overwhelming majority of these players are men and two-thirds of them are men aged than 30 years. They play few other Internet games, although two-thirds of them also gamble on slot machines or video lottery terminals (VLTs) (Valkama, 2006b). The helpline statistics show that gambling comorbidity with mental health problems and substance abuse is commonplace. Helpline statistics show that at least one in six problem gamblers have mental health problem, and that one in ten has an alcohol problem (Jaakkola 2006; 2009). There have also been reports from substance abuse clinics that approximately half of the clientele have gambling problems (Villikka, 2004).

More recently, the Finnish Ministry of Social and Health commissioned a study by *Taloustutkimus Ltd* to examine adolescent gambling (Ilkas & Aho, 2006a). The sample comprised 5,000 participants (aged 12- to 17-years) who were interviewed by telephone. For those under 15 years, parental permission was required and it was not known if the parents were with the adolescent at the time of the interview. Problem gambling was assessed using the revised version of the South Oaks Gambling Screen for Adolescents (SOGS-RA). Results indicated that gambling was commonplace among Finnish adolescents. Just under two-thirds of adolescents (60%) aged 15- to 17-years had gambled during the previous year. Among 14-year olds the figure decreased to just over half of the age group (52%) and a third of those aged 12 years (33%). A third of all 14-year olds gambled weekly (34%) (Ilkas & Aho, 2006a).

In relation to SOGS-RA results, 2.3% of Finnish youth were classed as problem gamblers. The cut-off rate of problem gambling in the Ilkas-Aho study was SOGS 5 points. However, if the cut off rate is SOGS 4 then the rate on problem gambling of adolescents in Finland is 2.3%. As with Finnish adults, slot machine gambling was the most preferred form of gambling among adolescents (Ilkas & Aho, 2006a). There were three types of gambling that adolescents engaged in weekly. These were (in order of popularity) slot machines gambling, Internet poker and sports betting.

Adolescent problem gamblers were most likely to be gambling on slot machines, scratchcards, Internet poker, and sports betting. As with adult Finnish gambling, male adolescents were more likely to gamble than females. They predictably spent significantly more money on gambling than non-problem gamblers. Adolescent gambling was also found to be associated with parental gambling (i.e., if one or both parents gambled the adolescent was more likely to). Based on the national prevalence surveys and helpline statistics, Jaakkola (2009) concludes that the most “worrying” forms of gambling in Finland for both adults and adolescents are slot machines, sports betting, and Internet poker.

France

A recent overview of gambling in France by Valleur (2009) indicated that gambling is a popular leisure activity in France. Figures released by La Francais des Jeux (FDJ) who operate the national Lottery, indicate that about 30 million people have gambled at least once, and 28.8 million of them gambled on the FDJ. Table 6 highlights the main demographic findings on gamblers in France (n=2000) as supplied by FDJ (Valleur, 2009). It

is unclear where or how these national statistics were compiled as no methodological details were provided by FDJ. According to the FDJ figures, one-third of all gamblers are regular gamblers (i.e., gambling at least once a week) representing approximately two-thirds of the FDJ turnover

Table 6: Main demographic features of gamblers in France

Distribution of the population					
	Total	All Gamblers	FDJ gamblers	Horserace gamblers	Casino gamblers
16-24 years	14%	15%	15%	9%	19%
25-34 years	17%	20%	21%	22%	19%
35-44 years	18%	20%	20%	17%	19%
45-59 years	25%	25%	25%	29%	20%
60 years+	26%	20%	19%	23%	23%
Men	48%	48%	47%	60%	53%
Women	52%	52%	53%	40%	47%
Managers	26%	27%	26%	28%	25%
Workmen, employees	29%	33%	34%	39%	30%
Unemployed, retired	45%	40%	40%	34%	45%

Table adapted from Valleur (2009)

Valleur (2009) reports that the rapid expansion of slot machines since 1987 has radically altered the “gambling landscape” in France. Slot machines now represent the casinos’ main gambling activity, providing casino operators with up to 95% of their turnover. Casinos are the largest gaming operators in France, and exceed the gaming revenues of the other two government gaming operators combined (i.e., FDJ and PMU). After the USA, France has the second highest number of casinos in the world (n=196) that house close to 20,000 slot machines (Valleur, 2009). The success of slot machines has lead operators to introduce more instant ‘impulse games’ into the French market (e.g., *Rapido*, a high event frequency lottery game).

To date there has been no national gambling prevalence survey in the French general population. Estimates are sometimes made, using data from other countries by combining these with the economic data of the French gambling market. However, as Valluer (2009) states, such non-empirical estimates cannot be considered reliable.

Indirect data on problem gambling in France comes from a (now quite old) study of those who telephoned for help and/or counselling from a French gambling helpline operated by *S.O.S Joueurs [SOSJ]* (Achour-Gaillard, 1993). This was a qualitative study concerning 238 problem gamblers. This group of help-seeking problem gamblers was predominantly male (92%), and aged between 25 and 44 years. Most of these gamblers were married (59%) with children (78%) and in a low paid job (52%). The majority of them (82%) gambled on just one type of activity. Unsurprisingly, almost all of the problem gamblers were in heavy debt (97%). One in five of the gamblers had committed criminal offences (19%). Problem

gambling was most associated with horserace betting (50%), slot machines (19%), traditional casino games (17%), and poker (6%).

At the time of this study (1993), slot machines were only just beginning to be present in casinos, and these data were relevant mainly for horse race bettors. Since 1993, gambling practices have evolved as well as the profile of clients seeking help for gambling problems. According to Valleur (2009), the few French clinicians who have problem gambling clients note that there are increasingly more people with low incomes, the elderly, and more women.

The 2006 gambling helpline figures of 1,242 people calling the helpline saw a significant increase from 915 calls in 2005 (*SOS Joueurs*, 2006). Of these 1,242 problem gamblers, the demographic profile was: 66% were married; 68% had children; 41% were workers or employees; 10% were unemployed (and out of work); 21% were retired or without work; 61% had an income of up to 200 Euros per month (10% had no legal income); 82% had got into debt (*SOS Joueurs*, 2006).

In a somewhat implicit way, French gambling policy is formulated on the idea that some games are more risky (i.e., potentially more problematic) than others (Valleur, 2009). The risky games are located in casinos whereas other less risky games are widely accessible to everyone (e.g., *Loto*, *Euromillions*). Data from *S.O.S. Joueurs* (2005) confirms this in relation to the types of games that cause problems. Among the 915 gamblers who asked for help 21% gambled on *Française des Jeux* games, essentially *Rapido*; 29% gambled horse racing; 50% gambled at casinos (essentially slot machines This has to be compared with the 1993 study, where only 19% were using slot machines; 12% gambled on Internet; 3% gambled at gambling clubs; 3% gambled on illegal games; and 7% gambled on poker (online or offline). According to Valleur (2009), these data confirmed what most French clinicians know, (i.e., that slot machines are the most problematic form of gambling and that *Rapido* and horse race gambling are also at high risk of causing problems).

It should also be noted that there have been a few other studies of problem gamblers in France but these have been relatively small-scale. For instance, a series of studies by Bonnaire and colleagues (Bonnaire *et al*, 2004; Bonnaire *et al.*, 2006; Bonnaire, 2007) have examined sensation seeking and alexithymia in problem gamblers and have compared them to both regular gamblers and non-gamblers. These studies found mixed results and it was concluded that sensation seeking does not allow discrimination between pathological gamblers, non-gamblers, and regular gamblers. Research also showed that problem gamblers were more likely to experience alexithymia but that this could not be used to predict problem gambling. Another small-scale study in France found an association between drug use and problem gambling in an exploratory study among drug addicts hospitalised for withdrawal in Marmottan hospital in Paris (Tribou-Gil, 2006).

Germany

Germany has an established history of research into problem gambling, but it was only very recently that the first national prevalence surveys were carried out. The most recent review

of gambling participation and prevalence rates of problem gambling in Germany by Mayer and Hayer (2009) made particular reference to these studies.

The first German national prevalence study by Buth and Stöver (2008) comprised 7,981 randomly selected individuals aged between 18 and 65 years. Data collection for half the participants was via a computer-based telephone survey (response rate: 55.8%), whereas the remaining data were collected via an online survey (response rate: 68%). To determine the prevalence rate of problem and pathological gambling, an instrument containing 19 items was used (Stinchfield, 2002). With one exception (withdrawal symptoms), two items assessed one DSM-IV-criterion of pathological gambling. Whenever at least one corresponding item was responded to positively, the presence of DSM-IV-criterion was given. If 3 or 4 criteria were given, the gambling behaviour was considered problematic. Pathological gambling was defined as anyone who scored 5 or more criteria. Only those participants who gambled at least once a week and/or spent at least 50 Euros a month on one of the specified types of gambling were required to answer the DSM-IV-criteria.

Results indicated that 39% of all participants had participated in gambling at least once within the previous year. The most prevalent forms of gambling were the lottery (33%), scratchcards (12%), 'Glücksspirale' (6%), class lotteries (4.5%) and sports betting (4.5%). Weekly gambling was participated in by 13% of the sample. The most prevalent weekly forms of gambling were the lottery (10.5%), 'Glücksspirale' (1.2%), and sports betting (1%). Results also indicated that participation in one type of gambling correlated with involvement in further types of gambling. Overall, 0.55% of the participants were classified as pathological gamblers, and an additional 0.64% of participants were classed as problem gamblers. However, when distinguished by gambling type there were a number of activities that were more associated with problem gambling. These were gambling machines (9%), horse race betting (7%), casino gambling (5%), and sports betting (4%). The proportion of pathological gamblers playing the lottery was only 1.6%.

In a second representative German prevalence survey, Bühringer and colleagues (2007) also reported the prevalence of pathological gambling. These data were collected as part of the Epidemiological Survey on Substance Abuse (which first started in 1980). For the first time in 2006, this survey supplemented with questions relating to gambling behaviour. The sample comprised 7,817 participants aged between 18 and 64 years with (response rate of 48%). Pathological gambling was assessed using the DSM-IV-TR. As with the Buth and Stöver (2007) study, a cut-off point of 5 was used to define pathological gambling. Only those individuals who spent (on average) more than 50 Euros a month in the past year on gambling were required to answer the questions.

The results indicated that almost three-quarters of the adult population (72%) gambled before. Of these, almost half (49%) were classed as 'current' gamblers (having gambled in the past year) with 27% classed as 'multiple gamblers' (i.e., had gambled on more than one activity). Among current gamblers, the prevalent activities were lottery products (60%), television/class lotteries (14%), sports betting (5%), casino gambling (4%) and AWP-machines (2%). Demographically, compared to the general population, current gamblers were significantly more likely to be male, older, married, employed with a higher income, and better educated. The prevalence of pathological gambling was just under 0.2%. Approximately 1.5% of the population scored 1 to 4 symptoms on the problem gambling

criteria. The highest risk activities were Internet card games (7%), casino slot machines (7%) and AWP-machines (5%). The lowest risk was represented by lotteries products (0.1%).

The only representative study examining the prevalence of problem gambling among an adolescent population was carried out by Hurrelmann, Schmidt and Kähnert (2003). This study used the screening instrument DSM-IV-MR-J, designed by Fisher, (1999), which includes nine symptoms of problem gambling. Adolescents who met at least four diagnosis criteria were deemed to be problem gamblers. The sample comprised 5,000 boys and girls aged between 13 and 19 years in the Federal State of North Rhine-Westphalia. Results showed that nearly two-thirds of participants (62%) of the students had gambled for money. Both scratchcards and private card games were popular. In the past year, adolescents had gambled on scratchcards (36%), private card games for money (29%), the state-run sports bet 'Oddset' (18%), AWP-machines (17%), private skill games (17%), and private dice games (15%). 'Oddset' was the most frequent gambling activity by adolescents, with almost two-fifths of the current 'Oddset'-gamblers (38%) having gambled on this activity several times a week to daily. The prevalence rate of problem gambling was 3% of all participants (around 9% of adolescent gamblers).

In these representative German surveys, several factors were mentioned that increased the risk of developing problem gambling. Buth and Stöver (2007) noted that over 80% of males, often young adults (aged 18- to 29-years), were the most likely to develop gambling problems. Predictably, other factors were associated with problem gambling including the number of different activities gambled upon and higher monthly gambling expenditure. Certain types of gambling (e.g., gambling machines, sports betting, casino games, horse race betting) appeared to be more associated with problem gambling.

Among adolescent gamblers there were similar findings. Hurrelmann *et al* (2003) also found significantly more boys than girls were adolescent problem gamblers (with boys being five times more likely than girls). Compared to non-problem adolescent gamblers, adolescent problem gamblers reported significantly more stressful life events, consumed psychoactive substances more frequently, and were dissatisfied with their own life situation. It was concluded that the adolescent problem gamblers appeared to lack coping strategies for handling day-to-day demands.

Great Britain

Gambling is a popular activity and recent national surveys into gambling participation (including the national Lotto game), show that around two-thirds of adults gamble annually (Creigh-Tyte & Lepper, 2004; Sproston, Erens & Orford, 2000; Wardle *et al*, 2007). To date there have only been two British Gambling Prevalence Surveys among adults (BGPS; Sproston *et al*, 2000; Wardle *et al*, 2007). The extent of gambling activity, as measured in these surveys, revealed gambling to be a popular activity in Britain. In the most recent survey (n = 9,003), gambling was engaged in by over two-thirds of the population (68%; down from 72% in 2000), with the most popular gambling activity being the National Lottery Draw (i.e., Lotto). Over half of the population bought a Lotto ticket in the year covered by the survey (58%; down from 65% in 2000), while the next most popular gambling activity was the purchase of scratchcards (20%; down from 22% in 2000), followed by betting on

horse races (17%; up from 13% in 2000), playing slot machines (14%, the same as 2000) (see Table 7 for complete list of past year gambling activities and comparison with the previous survey). Only a small proportion had gambled online (3%) or made a bet online (4%). Overall 6% of the population had used the Internet to gamble in the past year. Table 7 shows the figures for past week gambling by activity and comparison to the previous survey).

Table 7: Comparison of gambling activities in past year in 1999 and 2006
(Wardle *et al*, 2007)

All and past year gamblers in 1999 and 2006

Gambling activities	All		Past year gamblers	
	1999	2006	1999	2006
	%	%	%	%
National Lottery Draw	65	57	90	84
Another lottery	8	12	11	17
Scratchcards	22	20	30	29
Football pools	9	3	12	5
Bingo	7	7	10	11
Slot machines	14	14	19	21
Horse races ^a	13	17	18	25
Dog races ^a	4	5	5	7
Betting with a bookmaker (other than on horse or dog races) ^a	3	6	4	9
Fixed odd betting terminals	n.a.	3	n.a.	4
On-line betting with a bookmaker on any event or sport	n.a.	4	n.a.	6
On-line gambling (other than on-line bookmakers or betting exchanges)	n.a.	3	n.a.	4
Table games in a casino	3	4	4	6
Betting exchange	n.a.	1	n.a.	2
Spread betting	n.a.	1	n.a.	1
Private betting (e.g., with friends, colleagues)	11	10	16	15
Another gambling activity	*	*	*	1
<i>Any gambling activity in past year</i>	72	68	100	100
Mean number of gambling activities	1.6	1.7	2.2	2.5
<i>Bases (weighted)</i>	7,700	8,972	5,543	6,085
<i>Bases (unweighted)</i>	7,680	8,978	5,550	6,161

The columns total more than 100% as more than one activity could be chosen.

n.a. = activity not asked in 1999.

^aThese activities do not include any bets made on-line.

Table 8: Comparison of gambling activities in past week in 1999 and 2006
(Wardle *et al*, 2007)

All and past week gamblers in 1999 and 2006

Gambling activities	All		Past week gamblers	
	1999	2006-07	1999	2006-07
	%	%	%	%
National Lottery Draw	47	33	89	82
Another lottery	4	3	7	8
Scratchcards	8	6	16	15
Football pools	6	2	11	5
Bingo	4	3	7	7
Slot machines	6	4	11	9
Horse races ^a	3	2	6	6
Dog races ^a	1	1	2	2
Betting with a bookmaker (other than on horse or dog races) ^a	1	1	2	3
Fixed odd betting terminals	n.a.	1	n.a.	2
On-line betting with a bookmaker on any event or sport	n.a.	1	n.a.	2
On-line gambling (other than on-line bookmakers or betting exchanges)	*	1	*	2
Table games in a casino	*	1	1	1
Betting exchange	n.a.	*	n.a.	1
Spread betting	1	*	2	*
Private betting (e.g., with friends, colleagues)	4	3	7	6
Another gambling activity	-	*	-	*
<i>Any gambling activity in past week</i>	<i>53</i>	<i>41</i>	<i>100</i>	<i>100</i>
<i>Bases (weighted)</i>	<i>7,700</i>	<i>8,996</i>	<i>5,543</i>	<i>3,649</i>
<i>Bases (unweighted)</i>	<i>7,680</i>	<i>8,996</i>	<i>5,550</i>	<i>3,749</i>

The columns total more than 100% as more than one activity could be chosen.

n.a. = activity not asked in 1999.

^aThese activities do not include any bets made on-line.

The latest BGPS also found that men were more likely than women to gamble (71% of men and 65% of women) gambled in the year covered by the survey (see Table 9), and tended to stake more money on gambling activities. The gambling activities men and women participate in were also varied. Men were more likely to gamble on almost all activities (e.g., football pools and slot machines, bet on horse and dog races, and to make private bets with friends), while women were more likely than men to play bingo, and tended to participate in a lesser number of gambling activities overall (see Table 9) (Wardle *et al*, 2007).

Table 9: Gambling activities in past year for all and for past year gamblers, by sex (Wardle *et al*, 2007)

All and past year gamblers

Gambling activity	All			Past year gamblers		
	Men	Women	Total ^a	Men	Women	Total ^a
	%	%	%	%	%	%
National Lottery Draw	59	56	57	83	85	84
Another lottery	12	12	12	16	18	17
Scratchcards	19	20	20	27	31	29
Football pools	5	2	3	7	2	5
Bingo	4	10	7	6	15	11
Slot machines	19	10	14	27	15	21
Horse races ^b	22	13	17	31	20	25
Dog races ^b	7	3	5	10	5	7
Betting with a bookmaker (other than on horse or dog races) ^b	10	3	6	14	4	9
Fixed odds betting terminals	4	1	3	6	2	4
On-line betting with a bookmaker on any event or sport	6	1	4	9	2	6
On-line gambling	4	1	3	6	2	4
Table games in a casino	6	2	4	9	3	6
Betting exchange	2	*	1	2	1	2
Spread betting	1	*	1	2	*	1
Private betting (e.g., with friends, colleagues)	15	6	10	21	10	15
Another gambling activity	1	*	*	1	1	1
<i>Any gambling activity</i>	71	65	68	100	100	100
<i>Bases (weighted)</i>	4,333	4,636	8,972	3,065	3,021	6,085
<i>Bases (unweighted)</i>	4,241	4,733	8,978	3,022	3,139	6,161

^aThe total column includes those for whom sex was not known.

^bThese activities do not include any bets made on-line.

Examination of prevalence and socio-demographic variables associated with problem gambling undertaken in the BGPS revealed that between 0.5% (PGSI; cut off point of 8) and 0.6% (DSM-IV; cut off point of 3) of the population aged 16 years and over were problem

gamblers (Wardle *et al*, 2007). The BGPS revealed there were a number of socio-demographic factors statistically associated with problem gambling. These included being male, having a parent who was or who has been a problem gambler, being single, and having a low income. Low income is one of the most consistent factors associated with problem gambling worldwide. Although many people on low incomes may not spend more on gambling, in absolute terms, than those on higher wages, they do spend a much greater proportion of their incomes than these groups. The links with general 'disadvantage' should also be noted. Research shows that those who experience unemployment, poor health, housing, and low educational qualifications have significantly higher rates of problem gambling than the general population (Griffiths, 2006; Griffiths & Delfabbro, 2001).

The latest BGPS showed that showed that approximately 1% of men and 0.2% of women in Britain could be classified as problem gamblers according to the DSM-IV (Wardle *et al*, 2007). Results of the BGPS also showed that on average the prevalence of problem gambling decreased with age although the male 25-34 year age group (1.7%) was slightly higher than the male 16-24 year age group (1.5%).

The types of games played also impacts on the development of gambling problems. This has consequences for understanding the risk factors involved in the disorder, as well as the demographic profile of those individuals who are most susceptible. For instance, certain features of games are strongly associated with problem gambling. These include games that have a high event frequency (i.e., that are fast and allow for continual staking), that involve an element of skill or perceived skill, and that create 'near misses' (i.e., the illusion of having almost won) (Griffiths, 1999). Size of jackpot and stakes, probability of winning (or perceived probability of winning), and the possibility of using credit to play are also associated with higher levels of problematic play (Parke & Griffiths, 2007). Games that meet these criteria include gaming machines and casino table games.

According to the BGPS, the most problematic types of gambling in Britain is associated with spread betting (14.7% of people who gambled on this activity in the past year were problem gamblers according to the DSM-IV), fixed odds betting terminal (11.2%), betting exchanges (9.8%), and online gambling (7.4%) (see Table 10). Furthermore, problem gambling prevalence was associated with the number of gambling activities undertaken, with the prevalence of problem gambling tending to increase with the number of gambling activities participated in. As noted above, for a large number of people, the Lotto Draw was the only gambling activity they engage in, and problem gambling prevalence among people who limit their gambling to activities such as the National Lottery was very low at 1%. As might be expected, problem gambling was associated with higher expenditure on gambling activities.

Variations in gambling preferences are thought to result from both differences in accessibility and motivation. Older people tend to choose activities that minimise the need for complex decision-making or concentration (e.g., bingo, slot machines), whereas gender differences have been attributed to a number of factors, including variations in sex-role socialisation, cultural differences and theories of motivation (Griffiths, 2006). Variations in motivation are also frequently observed among people who participate in the same gambling activity. For example, slot machine players may gamble to win money, for enjoyment and excitement, to socialise and to escape negative feelings (Griffiths, 1995). Some people gamble for one reason only, whereas others gamble for a variety of reasons. A further

complexity is that people's motivations for gambling have a strong temporal dimension; that is, they do not remain stable over time. As people progress from social to regular and finally to excessive gambling, there are often significant changes in their reasons for gambling. Whereas a person might have initially gambled to obtain enjoyment, excitement and socialisation, the progression to problem gambling is almost always accompanied by an increased preoccupation with winning money and chasing losses.

**Table 10: Problem gambling prevalence, by gambling activity in the last year
(Wardle *et al*, 2007)**

Past year gamblers

Gambling activity	DSM-IV problem gamblers	<i>Bases (weighted)</i>	<i>Bases (unweighted)</i>
	%	<i>n</i>	<i>n</i>
National Lottery Draw	1.0	4,800	4,915
Another lottery	2.1	962	981
Scratchcards	1.9	1,638	1,619
Football pools	3.5	273	271
Bingo	3.1	609	635
Slot machines	2.6	1,195	1,141
Horse races ^a	1.7	1,456	1,470
Dog races ^a	5.2	423	404
Betting with a bookmaker (other than on horse or dog races) ^a	3.9	530	503
Fixed odds betting terminals	11.2	213	186
On-line betting with a bookmaker on any event or sport	6.0	323	303
On-line gambling	7.4	215	191
Table games in a casino	5.2	327	298
Betting exchange	9.8	82	74
Spread betting	14.7	57	53
Private betting (e.g., with friends, colleagues)	2.3	854	796
Another gambling activity	[6.1]	39	38
<i>Any gambling activity in past year</i>	0.9	5,529	5,622

^aThese activities do not include any bets made on-line

Adolescent gambling is a cause for concern in the UK and is related to other delinquent behaviours. For instance, in one study of over 4,500 adolescents, gambling was highly correlated with other potentially addictive activities such as illicit drug taking and alcohol abuse (Griffiths & Sutherland, 1998). Another study by Yeoman and Griffiths (1996) demonstrated that around 4% of all juvenile crime in one UK city was slot machine related based on over 1,850 arrests in a one-year period. It has also been noted that adolescents may be more susceptible to problem gambling than adults. For instance, in the UK, a number of

studies have consistently highlighted a figure of up to 5%-6% level of pathological gamblers among adolescent slot machine gamblers (see Griffiths 2002; 2003b) for an overview of these studies). This figure is at least two to three times higher than that identified in adult populations. On this evidence, young people are clearly more vulnerable to the negative consequences of gambling than adults.

A typical finding of many adolescent gambling studies has been that problem gambling appears to be a primarily male phenomenon. It also appears that adults may to some extent be fostering adolescent gambling. For example, a strong correlation has been found between adolescent gambling and parental gambling (Wood & Griffiths, 1998; 2004). This is particularly worrying because a number of studies have shown that when people gamble as adolescents, they are then more likely to become problem gamblers as adults (Griffiths, 2003b). Similarly, many studies have indicated a strong link between adult problem gamblers and later problem gambling amongst their children (Griffiths, 2003b). Other factors that have been linked with adolescent problem gambling include working class youth culture, delinquency, alcohol and substance abuse, poor school performance, theft and truancy (e.g., Griffiths, 1995; Griffiths & Sutherland, 1998; Yeoman & Griffiths, 1996).

The main form of problematic gambling among adolescents has been the playing of slot machines. There is little doubt that slot machines are potentially 'addictive' and there is now a large body of research worldwide supporting this. Most research on slot machine gambling in youth has been undertaken in the UK where they are legally available to children of any age. The most recent wave of the UK tracking study carried out by MORI and the International Gaming Research Unit (2006) found that slot machines were the most popular form of adolescent gambling with 54% of their sample of 8,017 adolescent participants. A more thorough examination of the literature summarizing over 30 UK studies (Griffiths, 2003b) indicates that:

- At least two-thirds of adolescents play slot machines at some point in their adolescent lives;
- One third of adolescents will have played slot machines in the last month;
- That 10% - 20% of adolescents are regular slot machine players (playing at least once a week) (17% in the latest 2006 MORI/IGRU national prevalence survey);
- That between 3% and 6% of adolescents are probable pathological gamblers and/or have severe gambling-related difficulties (3.5% down from 4.9% in the latest 2006 MORI/IGRU national prevalence survey).

All studies have reported that boys play on slot machines more than girls and that as slot machine playing becomes more regular it is more likely to be a predominantly male activity. Research has also indicated that very few female adolescents have gambling problems on slot machines. Research suggests that irregular ('social') gamblers play for different reasons than the excessive ('pathological') gamblers. Social gamblers usually play for fun and entertainment (as a form of play), because their friends or parents do (i.e., it is a social activity), for the possibility of winning money, because it provides a challenge, because of ease of availability and there is little else to do, and/or for excitement (the 'buzz').

Pathological gamblers appear to play for other reasons such as mood modification and as a means of escape. As already highlighted, young males seem to be particularly susceptible to slot machine addiction with a small but significant minority of adolescents in the UK

experiencing problems with their slot machine playing at any one time. Like other potentially addictive behaviours, slot machine addiction causes the individual to engage in negative behaviours. This includes truanting in order to play the machines, stealing to fund machine playing, getting into trouble with teachers and/or parents over their machine playing, borrowing or the using of lunch money to play the machines, poor schoolwork, and in some cases aggressive behaviour (Griffiths, 2003b). These behaviours are not much different from those experienced by other types of adolescent problem gambling. Furthermore, slot machine addicts also display bona fide signs of addiction including withdrawal effects, tolerance, salience, mood modification, conflict, and relapse.

It is clear that for some adolescents, gambling can cause many negative detrimental effects in their life. Education can be severely effected and they may have a criminal record as most problem gamblers have to resort to illegal behaviour to feed their addiction. Gambling is an adult activity and the Government should consider legislation that restricts gambling to adults only.

The introduction of the internet and other remote gambling developments (such as mobile phone gambling and interactive television gambling) has the potential to lead to problematic gambling behaviour and is likely to be an issue over the next decade. Remote gambling presents what could be the biggest cultural shift in gambling and one of the biggest challenges concerning the psychosocial impact of gambling.

To date, there has been little empirical research examining remote gambling in the UK. The first prevalence survey was published in 2001 (from data collected in 1999) when internet gambling was almost non-existent and reported that only 1% of internet users had ever gambled online (Griffiths, 2001a). A recent report published by the DCMS (2006) however, noted that online gambling had more than doubled in Great Britain since 2001. Worldwide there are around 2,300 sites with a large number of these located in just a few particular countries. For instance, around 1,000 sites are based in Antigua and Costa Rica alone. The UK has about 70 betting and lottery sites but as yet no gaming sites (e.g., online casinos featuring poker, blackjack, roulette, etc.). The findings reported that there were approximately one million regular online gamblers in Britain alone making up nearly one-third of Europe's 3.3 million regular online gamblers. It was also reported that women were becoming increasingly important in the remote gambling market. For instance, during the 2006 World Cup, it was estimated that about 30% of those visiting key UK based betting websites were women. The report also stated that Europe's regular online gamblers staked approximately €4.86 billion a year at around an average of €1,389 each. In addition, it was also predicted that mobile phone gambling was likely to grow, further increasing accessibility to remote gambling. The latest national prevalence survey reported that 6% of people in Great Britain had gambled online in some way.

To date, knowledge and understanding of how the Internet, mobile phones, and interactive television affect gambling behaviour is sparse. Globally speaking, proliferation of Internet access is still an emerging trend and it will take some time before the effects on gambling behaviour surface (on both adults and young people). However, there is strong foundation to speculate on the potential hazards of remote gambling. These include the use of virtual cash, unlimited accessibility, and the solitary nature of gambling on the Internet as potential risk factors for problem gambling development (Griffiths, 2003c; 2005b; Griffiths & Parke,

2002; Griffiths, Parke, Wood & Parke, 2006).

There is some evidence from the latest gambling prevalence survey (Wardle *et al*, 2007) that Internet gambling is associated with problem gambling, and recent studies using self-selected samples suggest that the prevalence of problem gambling among Internet gamblers is relatively high (Griffiths & Barnes, 2007; Wood, Griffiths & Parke, 2007). What is clear, however, is that online gambling has strong potential to facilitate, or even encourage, problematic gambling behaviour (Griffiths, 2003c; Smeaton & Griffiths, 2004). Firstly, the 24-hour availability of Internet gambling (and other remote forms) allows a person to potentially gamble non-stop (Griffiths, 1999). The privacy and anonymity offered by Internet gambling enables problem gamblers to continue gambling without being 'checked' by gambling venue staff concerned about behaviour or amount of time spent gambling (Griffiths *et al*, 2006). Friends and family may also be oblivious to the amount of time an individual spends gambling online. In addition, the use of electronic cash may serve to distance a gambler from how much money he or she is spending, in a similar way that chips and tokens used in other gambling situations may allow a gambler to 'suspend judgement' in regards to money spent (Griffiths & Parke, 2002).

Given the brief outline above, remote gambling could easily become a medium for problematic gambling behaviour. Even if numbers of problem remote gamblers are small (and they by no means necessarily are), remote gambling remains a matter of concern. Remote gambling is a relatively new phenomenon and is likely to continue expanding in the near future. It is therefore crucial that the new legislation does nothing to facilitate the creation or escalation of problems in relation to remote gambling.

The regulation of online gambling is fraught with problems. Preventing underage gambling is difficult, if not impossible, as there is no way of determining whether an adolescent or child is using a parents' credit or debit card to gamble online. Likewise, it is impossible to tell whether a person is gambling while under the influence of alcohol or other drugs, or is suffering from a gambling addiction. The 24-hour availability of online gambling is problematic for those with, or at risk of developing, gambling problems, as there is currently nothing stopping a person from gambling 24-hours a day (Griffiths, 2003c; Griffiths & Parke, 2002).

Greece

Despite an extensive search of the academic literature and other Internet databases, there is almost nothing known empirically about gambling and problem gambling in Greece. Gambling in Greece (mainly sports betting and lottery) is a monopoly of the *OPAP* (the Greek gaming operator). The *Online Gambling Paper* (2007) reported that *OPAP* revenue in 2006 was over 4.5 billion Euros with gross profit of over 850 million Euros for the same year. From sports betting alone the revenue for 2006 was close to 2.4 billion Euros (a 55% increase from 2005). These figures demonstrate that gambling appears to be highly prevalent in Greece.

According to recent polls carried out by a popular online gambling site, Greece is one of Europe's leading Internet gambling nations (European Online Gambling, 2008). The same

report claimed that gambling is very widespread in Greece and that Greeks tend to primarily gamble on football, and most Greek gamblers are male and between the ages of 18 and 45 years, with 25 to 35 year olds as the most- represented group. However, these findings are unsubstantiated. The Balkan gambling markets (Greece, Turkey, Croatia, Slovenia, Serbia, Montenegro, Romania, and Bulgaria) already have a large market size, and most experts confirm that the Balkan markets (including Greece) have a great growth potential in the coming years (EMPortal, 2008). Another news report claimed that Greeks had almost tripled the size of their gambling market in three years to 16 billion Euros (2004-2007) according to the latest estimates of the *National Federation of Bookmakers* (Topas, 2008).

In 2003, Dr Thomas Malaby published an academic book (*Gambling Life*) about gambling in Greece but this was based on a small qualitative study carried out in the town of Chania. Malaby was contacted but confirmed that apart from his qualitative study there was no empirical research on gambling in Greece (Malaby, 2009). Malaby speculated on the lack of Greek research:

“One could point to the rather strange but stable situation that Greece is in as regards gambling from a policy perspective. The church there had been at the forefront of a public anti-gambling campaign for many years, and the government seemed to pay lip service to those concerns, all the while letting local communities continue to enforce anti-gambling laws as they saw fit – that is to say, minimally. With the growth of the EU and its policy influence over Greece, the situation seems to have remained largely the same. I know of no EU directives or initiatives to crack down on illegal gambling, and in the absence of that the Greek government continues to view the activity as relatively benign...The majority of academics with an interest in Greece have for quite a long time focused on more "high-brow" issues...Add to this the quite fascinating issue of Modern Greece's relationship in its nation-building to its classical past and topics from the "seedy" side of Greek life seem to have been crowded out. I almost did not get (funding) to study gambling in Greece because many on the national committee found the topic potentially embarrassing.”

More recently, following negotiations on the subject of gambling between the European Commission and the Greek authorities, *OPAP* has put forward socially responsible regulating proposals. These include a 10% reduction in promotional spending; greater protection for minors and other vulnerable social groups; and making a stronger commitment to reducing gambling in Greece (Euroslot, 2008). Hopefully, such actions will lead to the start of research on gambling participation and problem gambling in the country.

Hungary

According to a recent review in Hungary by Demetrovics (2009), there has been almost no empirical research on gambling and problem gambling. Before 2007, no epidemiological research had been conducted at all. In 2003, Paksi and Elekes (Paksi, 2007) conducted a drug and alcohol epidemiological research on a nationally representative Hungarian sample that included some questions on gambling participation. However, as Demetrovics (2009) points out, this research is not suitable for estimating problem gambling, as that was not the aim of the study.

Data relating to the frequency of participating in different gambling activities has been reported in the research conducted by Paksi and Elekes (Paksi, 2007). The research sample comprised 3,675 adults aged between 17 and 53 years. Results showed that 19% of the participants gambled every month or in every other month and that 11% gambled weekly. The prevalence of daily gambling activities or several times a week was below 1% (0.2% and 0.6% respectively).

Some data relating to the different types of gambling activities was carried out on those who gambled at least every month or in every second month. These data examined the number of days spent gambling in the previous month, and the amount of money spent on the gambling activity within the previous month (see Table 11). The prevalence rates for gambling were relatively low. Regular gambling activity was found only in relation to lottery gambling.

Table 11: Frequency of different types of gambling in Hungary during the past month and money spent on gambling in the past month

	<i>Number of respondents</i>	<i>No gambling (%)</i>	<i>Once (%)</i>	<i>2 to 5 times (%)</i>	<i>6 to 10 times (%)</i>	<i>More than 10 times (%)</i>	<i>Doesn't know/remember (%)</i>	<i>Spending more than €50 on gambling in the past month (%)</i>
Went to casino	379	97.1	1.3	1.4	0.1	0	0.1	21.9
Played on slot machines	382	91.8	2.1	4.9	0.5	0.4	0.2	4.5
Bet on sports	379	90.5	1.8	6.7	0.6	0.3	0.1	2.8
Lotto or instant tickets	452	6,7	11.4	78,1	2,6	1,0	0.2	1.8
Played cards for money	379	97.5	0.3	1.7	0.3	0	0.1	11.6
Other	378	97.9	0.3	1.3	0	0.2	0.2	0

In another study using cluster analysis, Marián and colleagues (2006) differentiated between four types of gamblers. This study examined the amount of money spent on gambling, and was based on variables describing gambling habits (what, how and how often does the person play) among 6,112 participants. This gave a basic differentiation between non-gamblers (45%), occasional gamblers (13%), regular gamblers (35%), and heavy gamblers (7%). However, it should be noted that the research only included products of only one

company (*Szerencsejáték ZRT [SZRT]*) and not the whole range of gambling activities available in Hungary.

The small number of heavy gamblers (7% of the adult population; 12% of gamblers) are the individuals who Marián *et al* (2006) describe as considering gambling as a profession but also participate in an impulsive manner. This is in contrast to the occasional gamblers who perceive products of *SZRT* as consumer goods. While the occasional gamblers spend money on gambling on a regular basis, they do so in a planned and responsible way, always knowing how much to spend on a game. Heavy gamblers are characterised by a different gambling pattern. They play multiple games with multiple bets, and they tend to significantly increase the amount of money spent on betting as the jackpot prize increases. This type of gambler is characterised by impulsivity rather than planning. The authors also refer to a group of extreme gamblers (about 1% of the adult population) who play with high wagers. However, this research did not use any standardised method to determine the prevalence of problem gambling.

The only other Hungarian data on problem gambling comes from an old study by Németh *et al*, (1996) who analysed data from two psychiatric clinics in a two-year period (1994-1996). Over the 24-month period, 12 patients were identified as receiving treatment for pathological gambling. These were all male, all single (bar one person), with an average age of 31 years, and aged between 21 and 50 years. The authors identified a psychiatric disorder among close relatives in seven cases (two of which were pathological gambling). The most frequent gambling types were roulette and slot machines. Given the small number of problem gamblers, little can be generalised to the Hungarian population more generally.

Iceland

According to a recent review of gambling in Iceland by Olason and Gretarsson (2009), public discussion of problem gambling in Iceland emerged around 2000. Most of the data reported here is based on the first large gambling study project in Iceland that began in 2002 at the University of Iceland. Prior to this study, only one study had examined the prevalence of gambling (IMG-Gallup, 2000). Results of this study showed that problem gambling among adults in Iceland was an issue although it was based on a very small sample. However, the study suggested that a more detailed, extensive and systematic research project was needed in Iceland (hence, the initiation of the University of Iceland gambling project).

The main aim of the project is to collect data on the prevalence of gambling and problem gambling for both the adult and adolescent populations in Iceland. To date, four studies have been conducted during a three-year period and the main results from these will be reported below. Due to growing concerns about the SOGS and its derivatives, two more recently developed instruments with acceptable psychometric properties were chosen for use in the studies. For adults, these were the Problem Gambling Severity Index (Ferris & Wynne, 2001) and the 19-item version of the Diagnostic Interview for Gambling Severity (Stinchfield, 2002). For the measurement of adolescent problem gambling, the two most widely used instruments were chosen for validation, the DSM-IV-MR-J (Fisher, 2000b) and the SOGS-RA (Winters, Stinchfield & Fulkerson, 2003).

As with the review by Olason and Gretarsson (2009), for the sake of comparability of the adult and adolescent studies in Iceland, only the findings from the DSM-IV derived screening instruments for problem gambling (DIGS and DSM-IV-MR-J) are presented. The methodology of three studies on adolescents and adults will be briefly described. Subsequently, the main findings relating to current (past year) prevalence of gambling participation and problem gambling in Iceland will be presented below.

- *Adolescent study 1:* The sample comprised 750 students (aged between 16 and 18 years) from 12 upper secondary and comprehensive schools in the greater Reykjavik area and in Akureyri. There were 379 males and 371 females (with a mean age of 17 years). [For a thorough description of the sample and procedures see: Olason, Sigurdardottir and Smari [2006]].
- *Adolescent study 2:* The sample comprised 3,511 adolescents (aged between 13 to 15 years) from 23 primary schools in Reykjavik and included 77% of all adolescents in this age range in Reykjavik at the time of the study. There were 1,711 boys and 1,791 girls. [For a thorough description of the sample and procedures see: Olason, Skarphedinsson, Jonsdottir, Mikaelsson and Gretarsson [2006]].
- *Adult study.* A national random sample of 5000 adults aged between 18 and 70 years were drawn from the national registers and interviewed by telephone. From the total sample, 192 were considered not eligible respondents leaving a total sample to 4,808. Response rate was 69.8% (3358/4808). To reduce bias due to non-response, the final sample was weighted for gender, age and residence distribution according to information obtained from the national registers in Iceland (Olason, Barudottir & Gretarsson, 2006)

Findings from the three Icelandic studies indicated similar results. Over two-thirds of all three samples had gambled in the previous year: 79% in the first adolescent study, 70% in the second adolescent study and 69% in the adult study. In all three studies, gambling was more prevalent among males. The most popular gambling activities among adolescents were scratch tickets (30% and 28% in studies 1 and 2), slot machines (47% and 32% in studies 1 and 2), and the Lotto (30% and 28% in studies 1 and 2). The three most popular gambling activities among adults were the Lotto (56%), scratch tickets (17%), and slot machines (12%). Further examination of the results indicated that adolescents gambled more frequently than adults in all gambling games except the Lotto.

As is common in other surveys of adult problem gambling, respondents scoring 3 or 4 points on the DSM-IV criteria were classified as current “problem gamblers” while respondents scoring five or more points were classified as current “probable pathological gamblers”. Results indicated that in Iceland, 0.6% of participants were defined as probable pathological gamblers and an additional 0.5% of participants were defined as current problem gamblers.

Further analysis showed that that gender, education and marital status were all risk factors for problem gambling in adulthood. However, there was no relationship between either age or residential status with problem gambling. In summary, those who were male, single, and who had basic education were more at risk of becoming problem gamblers than females, those in a relationship or those with degree level education.

Table 14: Prevalence of problem gambling among Icelandic adolescents (Olason and Gretarsson, 2009)

	Adolescent Study 1 N = 750			Adolescent Study 2 N = 3511		
	<i>Non-problem gamblers</i>	<i>At risk gamblers</i>	<i>Problem gamblers</i>	<i>Non-problem gamblers</i>	<i>At risk gamblers</i>	<i>Problem gamblers</i>
Males	77.6%	5.5%	3.7%	68.8%	7.0%	3.4%
Females	70.1%	0.8%	0.3%	59.1%	0.6%	0.4%
Total	73.9%	3.2%	2.0%	63.9%	3.7%	1.9%

Note: Non-gamblers were not included in the table. About 21% were non-gamblers in Study 1 and 31% in Study 2.

The findings from the two Icelandic adolescent studies suggested higher problem gambling prevalence rates among adolescents than adults (see Table 14). Following the convention in adolescent surveys using the DSM-IV-MR-J, a score of 0 or 1 points on the nine DSM-IV criteria classifies respondents as “non-problem” gamblers, 2 or 3 points as “at risk” gamblers and scoring 4 or more points suggests “problem” gamblers (Fisher, 2000a). The prevalence of problem gambling was similar in both adolescent studies (see Table 14). Approximately 2% of adolescents were identified as problem gamblers with approximately 3.2% to 3.7% at defined as at risk for developing problem gambling. In both studies, males were more likely than females to have gambling problems.

TABLE 15: Association between problem gambling and potential risk factors among adults and adolescents (Olason and Gretarsson, 2009)

Type of gambling	Adult study		Adolescent study 2	
	Non-problem gamblers	Problem gamblers	Non-problem gamblers	Problem gamblers
Lotto	29.4%	23.5%	3.7%	25.8%**
Slot machines	4.2%	55.9%**	9.8%	64.1%**
Scratch-tickets	3.0%	12.1%*	7.8%	47.7%**
Games of skill	0.6%	3.0%	6.8%	43.5%**
Football pools	4.4%	20.6%**	8.6%	43.8%**
Sport betting	1.8%	12.1%**	5.9%	31.7%**
Card games	0.6%	14.7%**	4.7%	57.8%**
Bingo	0.2%	0.0%	0.8%	22.2%**
Internet gambling	0.2%	3.0%	0.4%	25.4%**

Note: * $p \leq 0.05$; ** $p \leq 0.01$

It was also found that adolescent problem gamblers were more likely than non-problem gamblers to participate monthly or more in all gambling activities and the difference between the groups was greatest for slot machines and private card games (see Table 15). Adult problem gamblers were more likely than adult non-problem gamblers to participate in games related to sports, card games and on slot machines. Lotto was the only game where participation was higher among non-problem gamblers but the difference was not significant. A logistic regression was also performed on all the data and it showed that card games and slot machines are the most important risk factors for problem gambling in Iceland.

Ireland

According to Wall (2007), there has been no survey work conducted on the prevalence of gambling and problem gambling among the population of Ireland. There is a little information on Irish lottery playing (now somewhat out of date). Nearly 60% of adults play the lottery regularly with around two thirds of the unemployed also playing it and spending above the national average (McGowan, 1994). In 1989, the Irish National Lottery commissioned economic consultants (Davy Kelleher McCarthy) to undertake a survey on the economic and social impact of the lottery. This followed complaints about excessive participation of the lottery by low-income groups. According to Douglas (1995), the DKM report found that 58% of the population gambled regularly on the lottery spending an average £1.92 (Irish) a week (based on 3,258 interviews). A further survey (3,281 interviewees) commissioned in 1991 found that participation levels had increased slightly to 59% spending just over £3 (Irish) a week. Overall, the reports indicated that weekly spend was higher amongst those who could least afford it but the reports said little about other problems associated with excessive gambling.

Wall presented an overview of recent trends in gambling in Ireland and discussed the current lack of research on the topic of problem gambling in Ireland. Ireland is relatively unregulated compared to many European countries (Wall, 2007) although new regulation has been introduced for casino gambling (Department of Justice, Equality and Law Reform, 2008). Country overviews of the Irish gambling situation typically list the number of gambling sites and opportunities and are completely devoid of statistics in gambling participation (e.g., Irish Gaming and Amusement Association, 2008).

The evidence base of gambling and problem gambling in Ireland has been described by Wall (2007) as “paltry”. However, from revenue statistics and household budget survey Wall provides a crude outline of the degree to which gambling is increasing in Ireland. He notes that the value of gambling has expanded from just over €1.6 billion in 2001 to over €3.6 billion in 2006. Furthermore, these figures do not include casino gambling or Internet gambling. Basically, the current level of research in Ireland also renders it very difficult to establish the likely effects of this huge increase in gambling.

Wall (2007) also notes that the public health consequences of gambling have not been discussed in depth despite the fact that there is strong international evidence that a sub-set of gamblers experience adverse financial, physical health and mental health effects.

Furthermore, there is almost no Irish literature on the optimal response to potential increases in gambling problems resulting from demographic, regulatory and industry changes in Ireland. Gambling questions do not appear in any of the main survey exercises conducted at a national level with the exception of the household budget survey (HBS). Although the HBS has the advantage of including detailed demographic and expenditure data, Wall (2007) notes that it is limited as a tool to assess potential gambling problems.

The available evidence in Ireland makes any conclusive statement on the likely effects of the increase in gambling in Ireland impossible to assess (Wall, 2007). Given the Irish propensity for the “crack” and the cultural acceptability of gambling Wall believes it would be naive to think that Ireland is immune to the problem. Wall speculates that the problem gambling rate for Ireland could be as high as 5% but without baseline data it is hard to assess. Clearly there is a strong need for baseline research on the nature and extent of gambling problems in Ireland. To date, there is neither available research nor any potential for secondary data analysis from existing health and well-being surveys (Wall, 2007).

Italy

A recent overview on gambling in Italy by Croce *et al* (2009) noted that large scale epidemiological research has not been carried out in Italy. It was not until recently that a relatively large study was carried out in Italy (Eurispes, 2000, cf Croce et al, 2009). However, Croce et al (2009) note that the scientific credibility of this research has been questioned because the researcher in question was instrumental in introducing and promoting a new bingo game into Italy. Unfortunately there are few methodological details to this study and the data provided was largely attitudinal. For instance, the main reasons for gambling were to earn money (37% men; 28.5 % women) and to have fun (21% men; 24% women). The research also reported that women had a more negative attitude towards gambling and tended to view gambling as a vice and/or an activity that could lead to a person’s ruin. Almost half of both men (47%) and women (48%) claimed they knew other people who had their lives ruined by gambling.

Another study by Lavanco and Lo Re (2001) on around 1,000 gamblers in the Sicily area differentiated gamblers into the following types: horse race bettors; Lotto, lotteries and scratchcard gamblers; and football pools/sports bettors. However, this research gave no statistics on prevalence of gambling or problem gambling only some broad psychological differences between the three types of gambler. A small study by Capitanucci and Biganzoli (2000) reported data from a sample of drug addicts. Among the 40 participants interviewed (aged 25- to 44-years; mean age = 36 years), a third of them (33%) were reported to be problem gamblers and a further two participants had some difficulties related to their gambling. Other small unrepresentative studies have been carried out in Italy such as studies on motivations to gamble (Di Maria, Lavanco & Lo Re, 2000) and on particular sub-groups like video poker gamblers (Lavanco & Varveri, 2006; Lavanco, Varveri & Vaccaro, 2003).

Biganzoli and colleagues (2004) carried out gambling prevalence research by telephone survey of the adult population in the Pavia province (n = 1,093 aged between 18 and 74 years). The population was representative of age, gender and occupation in Italy. Data were collected on socio-demographic factors, the perception of the spread of gambling, gambling

problems (using SOGS), and knowledge (if any) of the local gambling treatment facilities. Results showed that during the past year over a third had gambled on the state lottery (40%) and just under a quarter (23%) had gambled on non-lottery forms of gambling. The reason given to gamble by participants was to win money. Just over 1% said they had a relative that had a gambling problem, and just under one in ten (9%) said they knew a friend/acquaintance that had a gambling problem. Over four-fifths of the sample (82%) was unaware of gambling treatment services in the area. SOGS scores indicated that 0.7% were problem gamblers and 0.4% were probable pathological gamblers.

Another study of 2000 Italians living in Reggio Emilia (Centro Sociale Papa Giovanni XXIII, 2006; cf. Croce *et al*, 2009) examined gambling participation (48% women; 52% men; aged between 10 years and 80 years). The results indicated that 80% of the participants had gambled at least once during the past year. Those who played most often were those aged 30 to 49 years (39%). After secondary analysis of the data, Croce *et al* (2009) calculated the percentage of problem gamblers to be almost 7%. However, this figure was calculated by including all participants who played more than three times a week, for more than three hours a day, and spent more than €50 to €150 per day. Such inclusive criteria are likely to have greatly exaggerated the prevalence of problem gambling.

Recent research by Pini *et al* (2006) examined the relationship between excessive alcohol consumption, cigarette smoking and problem gambling on 684 students from Livorno (45% men and 55% women; aged between 16 and 22 years; mean age 17 years). Those addicted to one substance were classified as ‘mono-addicts’ while those who were addicted to two or more substances were defined as ‘poly-addicts’. Among male participants, higher alcohol consumption and cigarette smoking correlated with higher scores on the SOGS when compared to females. Problem and pathological gambling was approximately three times higher among males than among females. Those defined as “poly-addicts” had higher SOGS scores than ‘mono addicts’.

Capitanucci, Biganzoli and Smaniotto (2006) have also examined youth gambling. Their sample comprised the entire student population ($n = 579$) of a technical college in Northern Italy (520 males and 59 females; aged between 13 and 20 years). They were surveyed using the translated version of the SOGS-RA questionnaire. The most popular form of gambling was sports betting (14% more than once a week; 13% more than once a month). A total of 8% were classed as ‘at risk’ with a further 6% defined as probable pathological gamblers. Pathological gambling strongly correlated with gender (males being more likely), gambling out of habit, relaxation, and believing chance games to be skilful (e.g., erroneous cognitions).

A study by Baiocco, Couyoumdjian, Langellotti and Del Miglio (2005) examined aspects of pathological gambling among adolescents living in Rome. The sample comprised 300 adolescents (118 boys, 182 girls; aged between 14 and 20 years). A battery of questionnaires was administered to the sample (various personality questionnaires, parental and peer attachment scales, SOGS-RA, etc.). Results showed that adolescents preferred games of skill, rather than games with cards and various lottery games. Just over 8% were classed as “at risk” and just over 2% as a probable pathological gambler. Results also indicated that adolescent pathological gamblers had more problems in terms of school progress and discipline at school. Pathological gamblers were also more likely to have higher scores on

impulsiveness, aggressiveness and resentment towards their parents. Pathological gambling was also associated with parental gambling behaviour.

Latvia

According to Likops. and Taube (2008) there has been no research carried out into gambling and prevalence of addiction to gambling in Latvia. They accessed databases of the public health care institutions in Latvia in 2007, and noted there had been only three first-time registered cases of minors addicted to gambling and four first-time registered cases in the age group from 18 to 44 years. At the end of 2007, the Latvian database register contained 25 clients addicted to gambling (up from 17 clients in 2006), of which 10 were minors and 15 were in the age group between 18 and 44 years. As Likops and Taube point out, these data do not characterise the prevalence of addiction to gambling nor its trends in Latvia, because the clients turn for assistance not only to the addiction specialists working at public institutions, but also to those in the private sector (e.g., psychiatrists, psychotherapists and psychologists).

According to the data of the Riga Centre of Psychiatry and Addiction Disorders, in 2007 18 clients addicted to gambling (including one minor) had been treated as inpatients at addiction treatment institutions in Latvia. The largest proportion of clients was in the 25 to 44 year age group (n=10). All the clients treated for addiction to gambling were males. In addition, five people with gambling addiction had been treated at *Akrona 12 Ltd*. Likp[s and Taube note that development of addiction to gambling would not exist without gambling machines and unrestricted access to the Internet at home.

By examining the economic gambling data in Latvia, Likops and Taube concluded that the rapid growth of the total turnover of the gambling business and its revenues serve as evidence for the high demand and prevalence of gambling in Latvia even if this is not corroborated by statistical data of Latvian public health care institutions. The growth in gambling might be related to the more lenient personal loan policy practiced in 2007. Young, economically active people are exposed to the risk of gambling. They argue that the promotion of public awareness about the harmful consequences of excessive gambling would be of great importance in Latvia and would help reduce the risk of young people becoming addicted to gambling. Predictably, they also conclude it would be important to carry out a research on addiction to gambling and prevalence of gambling in the country.

Lithuania

A recent overview by Skokauskas (2009) noted that there had been no national prevalence surveys of gambling and problem gambling in Lithuania. The first study conducted on pathological gambling in Lithuania was by Skokauskas, Satekviute and Burba (2002; 2003a). Their study collected 'second-hand' data about Lithuanian problem gamblers based on interviews with 271 Lithuanian psychiatrists and psychotherapists. The resulting data was based on 77 clinical cases, including 22 adolescents (29%). Following these findings, the same researchers decided to investigate adolescent gambling behaviour more systematically.

The first adolescent gambling study took place in Kaunas (Lithuania's second biggest city). To date, this is the only Lithuanian gambling study that has utilised internationally recognised gambling scales (Skokauskas *et al*, 2005; 2007). The sample comprised 835 randomly selected students aged between 9 and 16 years from all Kaunas secondary schools (47% males, 53% female; mean age = 14.5 years). The study had a very high response rate (96%). The questionnaire included standard demographic variables, questions about what types of gambling participants had gambled upon, and two problem gambling scales translated into Lithuanian - the SOGS-RA (Winters *et al*, 1993) and the DSM-IV-MR-J (Fisher, 2000a). There were also other questions related to experiences with gambling, (e.g., perceptions of winning, typical gambling habits, parental gambling habits).

Over four-fifths of respondents (83%) had gambled on at least one gambling activity. Of the 17% who had never gambled, two-thirds of these were females. The most popular gambling activity was Tele-Lotto (54%), followed by other lotteries (37%), and betting (10%). Participants were classified into 'non-gamblers' (adolescents who had never gambled), 'occasional gamblers' (adolescents who gambled less than once per week), and 'regular gamblers' (adolescents who gambled at least once per week). As a consequence, 72% of participants were 'occasional gamblers', 11% were 'regular gamblers' and 17% were 'non-gamblers'. Males were significantly more likely to be both occasional and regular gamblers.

Using the DSM-IV-MR-J, 4% (n = 35) of participants were defined as pathological gamblers, with a further 9% (n = 76) of participants defined as at-risk gamblers. Using the SOGS-RA, 5% (n = 43) of participants were defined as pathological gamblers, with a further 10% (n = 88) defined as at-risk gamblers. The DSM-IV-MR-J was then used as the main screen because of its conservative nature in identifying fewer pathological gamblers and because of its similarity to the DSM-IV criteria. Predictably, pathological gamblers endorsed all items more frequently than did social and at-risk gamblers. Using gambling as a way of escape or relieving dysphoric mood received the highest endorsement (65.7%). Other items highly endorsed by pathological gamblers were preoccupation with gambling (60%), and lying about gambling activities to family members or others (51%).

Compared to non-pathological gamblers, pathological gamblers were significantly more likely to gamble on slot machines (51% vs. 8%), cards (17% vs. 7%), and SMS gambling (27% vs. 9%). Gender differences were evident with respect to pathological gambling, with Males (6%) were more likely than females (2%) to be pathological gamblers using the DSM-IV-MR-J. In logistic regression, six key characteristics were significantly associated with pathological gambling in adolescence: being male, having cognitive distortions regarding gambling, having parents who gambled, having parents who gambled to excess, using alcohol regularly, and smoking regularly.

Although this study yielded some interesting findings, there are certain limitations. As with most other studies of this kind it used self-report data. In relation to Lithuania more specifically, the results may not be generalisable to students in different geographic areas of the country because, according to the Lithuanian Gambling Control Commission, in Lithuania gambling business is mainly concentrated in the big cities (Lithuanian State Gambling Control Commission, 2004). It was concluded that most adolescents probably have some difficulty gaining access to casinos or slot machines parlours, but they can easily buy lottery tickets (as they are legal).

Despite these prevalence data on adolescent gambling, Lithuania has no reliable gambling prevalence data for adults. In 2006, the Lithuania Gambling Control Commission commissioned an opinion poll to survey Lithuanians' opinions about gambling and gambling-related problems. *Spinter Tyrimai*, a market research company, carried out the survey (cf. Skokauskas, 2009). The sample comprised 1,002 people aged between 18 and 64 years. Nearly one-third of respondents (30%) admitted that they had gambled. Of those who gambled, the most popular forms of gambling were betting (33%) gambling in gaming machine halls (28%), and casino gambling (7%). The majority of gamblers were male (70%) and younger than 35 years (59%) nearly two-thirds of gamblers (65%) gambled at least once per month. Four-fifths of gamblers (80%) stated they had no problems related to their gambling behaviour. A total of 2% of the sample reported they had financial problems because of their gambling, and 2% had psychological problems. However, it should also be noted that 13% of respondents did not answer the question about gambling-related problems. Although this study comprised a representative sample of the Lithuanian adult population, there was a lack of statistical analysis and no use of any gambling-related problem screen.

Luxembourg

Despite an extensive search of the academic literature and other Internet databases, there is almost nothing known empirically about gambling and problem gambling in Luxembourg. Demanuele, Jones, Mitev, Melendres and Simon (2002) reported a range of specific local projects have been set up for young people with various addictions. While most of these were originally focused on Luxembourg City they have spread elsewhere including in the more rural areas of the north. The Addiction Prevention Centre (*Centre de Prévention des Toxicomanies*) opened in 1997 and provides training, a telephone helpline, face-to-face counselling and undertakes research in the area of addictive behaviours. Its main focus is with addictive various addictive behaviours (including alcohol, drugs, smoking, gambling, workaholism). No statistics were provided on gambling addiction except to say that Luxembourg had similar levels of addiction to elsewhere in Europe.

Malta

Despite Malta's relationship with online gambling, an extensive search of the academic literature and other Internet databases revealed there is almost nothing known empirically about gambling and problem gambling in Malta. Malta is now a leading remote gaming jurisdiction, with a comprehensive set of remote gaming regulations in place. There are recent overviews of the regulatory and licensing system (Galea, 2008) but this provided no information on Maltese participation in gambling activity or prevalence of problem gambling.

Online Casino Extra (2007) reported a lifestyle study that was conducted by the Maltese organization (*Agenzija Sedqa*) in collaboration with the *National Focal Point for Drugs and Drug Addiction* and the *National Commission on the Abuse of Drugs, Alcohol and Other Dependencies*. The report gives little insight into the methodology but appears to be a study carried out on students aged 18 to 24 years. The survey found that 54% had played the lotto, Super 5,

Scratch cards and/or Keno at least once with 6.2% of the sample admitting they gambled weekly or almost weekly. Just over 2% had gambled online. The report said that a total of 1,226 in the sample had gambled in some shape or form (suggesting that over 2000 respondents participated). Despite the low prevalence, Internet gambling was singled out by lead author Jean Claude Cardona as a potential concern because of its convenience, anti-social nature and anonymity.

Sedqa said on the basis of the findings they were working hard to increase awareness on gambling addiction through information campaigns (even though gambling addiction in the sample appears not to have been assessed). They also said that on the basis of their findings more regulation (especially where online gambling is concerned) was needed. The Maltese Government have agreed to provide and train one social worker who will focus solely on helping gamblers overcome their addiction and to provide support to families affected by gambling addiction. In collaboration with the UK problem gambling organization *Gamcare*, there are plans for *Sedqa* to organize professional training for counsellors and social workers. *Sedqa* also works with local chapters of Gamblers Anonymous who it regularly refers clients to.

The Netherlands

In a recent overview of gambling in The Netherlands, Goudriaan, de Bruin and Koeter (2009) made significant reference to the Dutch population study conducted by the Center for Addiction Research (De Bruin *et al.*, 2006). This was a study on the nature and extent of problem gambling in the Netherlands. This was a cross-sectional study of Dutch inhabitants, aged 16 years and older. The sample was selected randomly, based on Dutch postal codes (i.e., a household sample) and comprised 5,575 participants (57% females, 43% male; aged between 16 and 99 years; mean age = 44 years). Compared with other national studies, the response rate was comparatively low at 28%. There was a variety of ways in which respondents could fill in the questionnaire including telephone, via internet, or respondents could fill in a printed questionnaire. The screening instrument used for assessing pathological gambling was a Dutch version of the SOGS.

Results showed that although participation in gambling is substantial (87%), relatively few people seem to experience problems. Only 1% of the Dutch population were ever a probable pathological gambler with a further 1.5% considered to be a potential problem/pathological gambler. The past year prevalence rates for probable and potential problem/pathological gambling were much lower than the lifetime prevalence, indicating that a relatively large proportion of the lifetime problem gamblers were former problem gamblers. However, Goudriaan *et al* (2009) note that the low response rate in the study (28%) requires caution in interpreting these prevalence estimates. For instance, the low response rate could have led to a lower estimation for the true prevalence.

Goudriaan *et al* (2009) further note that the number of probable pathological gamblers in the Netherlands appears to be lower than was often assumed in Dutch addiction literature, although prior to the 2006 Dutch gambling prevalence survey, the most recent review of problem gambling research in the Netherlands estimated the prevalence of problematic gambling to lie between 0.25 and 0.76% (Van den Brink *et al.*, 1994).

Goudriaan *et al* (2009) speculate that one possible explanation for the lower number of probable pathological gamblers could lie in a number of policy measures in The Netherlands that have been taken over the years (e.g, a ban of slot machines from accessible catering establishments such as snack bars and sports canteens, prevention initiatives introduced by slot machine operators, intervention by casino staff of suspected problem gamblers, self-exclusion initiatives on gambling premises). The decrease appears to be real as addiction treatment agencies have seen a drop in the number of problem gamblers seeking treatment. For instance, in 1994, around 6,000 people sought help primarily for gambling problems at addiction care organisations, but in 2002, this was only 2,800 (Goudriaan *et al*, 2009).

Further analysis of the 2006 Dutch gambling prevalence study shows that the most important demographic features of problem gamblers were related to gender, age, ethnicity, living situation and social economic status. For instance, 4% of the male respondents ever experienced gambling problems, compared to below 1% of females. The highest prevalence of probable pathological gambling in the age groups was between 18 and 50 years. The lifetime prevalence of problem gambling in native Dutch was lower than in ethnic minorities. However, for recent problematic gambling, there was less probable pathological gambling in ethnic minorities, but they score higher on potential problem/pathological gambling. It was also observed that there were high SOGS ‘at risk’ scores in second-generation non-western minorities. In relation to socio-economic status, the highest prevalence of problem gambling was present in the unemployed. About 8% of the unemployed had been a potential or probable pathological gambler at some point during their life. The largest group of potential/probable pathological gamblers in absolute numbers comprised the working class with about 3%.

Table 16: Last year gambling engagement with percentage of total of people engaging in specific activities by SOGS scores, and relative risk

Gambling type	SOGS 0-2	SOGS 3-4	SOGS \geq 5	RR (SOGS 3-4)	RR (SOGS \geq 5)
Lotteries	99.2%	0.5%	0.3%	1	1
Scratch Cards	97.6%	1.5%	0.9%	3	3
Slot machines	95.9%	2.2%	2.0%	4.4	6.7
Casino games	96.3%	2.5%	1.2%	5.0	4.0
Horse Race betting	100%			0	0
Internet	100%	0%		0	0
Illegal	91.2%	2.9%	5.9%	5.8	19.7
Playing cards and dice	95.5%	1.7%	2.8%	3.3	9.3
Sport pools	97.1%	1.2%	1.6%	2.4	5.3
Bingo	98.9%	0.4%	0.7%	0.8	2.3

In addition to associations between problem gambling to demographic features of the respondents, the Dutch study also attempted to link problem gambling to the games played.

The Dutch study showed that most problem gamblers participate in several forms of gambling. Therefore, the main form of gambling that is associated with problem gambling is often unclear. As with other countries, slot machine gambling and casino gambling are more closely related to problem gambling than, for instance, lotteries and betting on horses (see Table 16). Problem gambling is not only linked to the type of gambling or the type of location, but also in particular to the number of different games that the person is playing on (i.e., most problem gamblers participate in more than one game). The combination of slot machine gambling in amusement arcades and in the catering industry (for instance, in cafés or restaurants) shows the strongest link to problem gambling in the Netherlands (De Bruin *et al*, 2006).

De Bruin *et al* (2006) reported that in their face-to-face interviews, they encountered a relatively large amount of problem gamblers who gamble mainly frequent amusement arcades. However, it appears from their analyses that problem gambling is not so much related to the location or the type of gambling as to the *frequency* with which gamblers take part in the particular forms of gambling.

There is a long history of gambling and problem gambling research in The Netherlands including large studies on very particular forms of gambling such as scratchcard gambling including ones by Hendriks *et al* (1997) and DeFuentes-Merillas *et al* (2003; 2004). The first study into the prevalence of scratchcard gambling was done in the first year of introduction of scratchcards on 4,497 scratchcard gamblers (Hendriks *et al*, 1997). Using the SOGS, results from this study indicated that 4.1 % were defined as an at-risk scratchcard player and that 0.7% were defined as a problem scratchcard gambler. At-risk and problem players were more likely to be male (76% versus 59%), had a poor socio-economic background, more likely to be heavily gambling on other activities, and be excessive alcohol drinkers. A second study started five years following the introduction of scratchcards, comprised a prevalence (DeFuentes-Merillas *et al*, 2003) and an incidence study (DeFuentes-Merillas *et al*, 2004). From a random sample of 12,222 scratchcard gamblers, the prevalence survey reported that 2.7% were potential problematic scratchcard players using the SOGS. Only 0.24% met DSM-IV criteria for pathological scratchcard gambling (PSG), and only 0.09% had a unique PSG diagnosis, the other 0.15% were also gamblers addicted to other games of chance. The incidence study, with a two-year follow up (of the at-risk scratchcard players from the previous study) showed that the two-year cumulative incidence of PSG was 6.7%, and the two-year incidence for the total sample was estimated to be 0.24%. These findings indicated that PSG is a rare phenomenon in the Netherlands.

In 2001, the Netherlands Gaming Control Board commissioned a study to gain insight in the development and the extent of remote gambling (via the Internet, mobile phone and interactive television). Since then, regular studies have been conducted to monitor trends and new developments. A study by Motivaction (2005) surveyed 12,717 participants (aged between 18 and 55 years) via an online questionnaire.

Of the adult Dutch population using internet, participation in internet gambling has been relatively low (3% in 2002, 4% in 2003, 5% in 2004, and 4% in 2005). For internet gambling, socio-demographic characteristics are similar to gamblers involved in at-risk gambling activities (e.g., slot machine and casino gambling): they are more likely to be men, younger than 35 years, and more likely to have a medium level income. More men than

women participate in paid internet gambling – 63% in 2005. From 2002 to 2005, the number of young participants has increased (from 18% to 38% in the 18-25 year age group. Mean frequency of participation was 44 times a year in 2005. In 2005, the most popular internet gambling activities were slot machines outside of casino sites (52%) and casino games in Dutch (38%).

Problem gambling was assessed on the basis of past year behaviour in answer to just three questions: (1) spending more time than planned, (2) spending more money than planned, and (3) unsuccessfully trying to stop or diminish internet gambling. Anyone answering two or more of these questions with the answer option ‘more than once’ was classified as ‘potential internet problem gambler’. In addition, potential internet problem gamblers had to indicate that they gambled at least 500 Euros a year on internet gambling. Four ‘problem gambling questions’ were also posed with regard to past year behaviour on internet gambling (1) borrowing money for paid internet gambling or to defray debts from internet gambling, (2) having sleeping problems due to internet gambling, (3) staying away from school/work due to internet gambling, (4) diminished school/work performance due to internet gambling. Anyone answering two or more of these questions with the answer option ‘more than once’ was classified as ‘internet problem gambler’. Persons answering two of the ‘problem gambling questions’ affirmative, but gambling less than 500 Euros a year on the internet, were classified as ‘potential internet problem gambler’. Using these assessment measures 86% was classified as a recreational internet gambler (mean participation rate 22 times/year), 14% of the sample was defined as a ‘potential internet problem gambler’ (mean participation rate: 56 times/year), and not a single person was classified as an ‘internet problem gambler’ (Motivaction, 2005).

Similar questions were asked relating to mobile phone gambling. Results showed that over a third of respondents (36%) had participated in telephone gambling in the past 12 months. Three-quarters of mobile phone users (74%), participated less than once a month, whereas only 1% participated more than 10 times/month. Over nine in ten mobile phone gamblers (91%) were defined as a recreational telephone gambler, 9% were defined as a ‘potential telephone problem gambler’, and no-one was identified as a telephone problem gambler (Motivaction, 2005).

Norway

In a recent review on gambling and problem gambling in Norway by Göttestam and Johansson (2009), they observe that there have been several studies. Early specific work with gambling problems in Norway started with treatment attempts at the University of Trondheim in the late 1970s (Göttestam, 1993). Prevalence studies of gambling problems among adults did not begin until in the 1990s. More recently there have also been studies of adolescent gambling. Most of these epidemiological studies have been by Johansson (2006). The first Norwegian study of the prevalence of problem gambling among adults was conducted in 1997 but published six years later (Göttestam & Johansson, 2003). The sample comprised 4,820 participants who were recruited via random-digit telephone dialling of residential dwellings, and this covered the whole of Norway. The final sample ($n = 2,014$) was interviewed over telephone (48% response rate). The problem gambling screening instrument used was the DSM-IV. As the DSM questions were asked in the present tense,

the results were considered to give a good estimate of current prevalence. The frequency gambling with money was also assessed (i.e., never, sometimes or often).

Over two-thirds of the sample had participated in gambling (69%) and males gambled more than women. The most popular products were Lotto (76%), followed by football tipping (11%). Only one in twenty gambled on slot machines (5%). However, when examining problem gamblers, the highest proportion of pathological gambling was related (in order of problems) to slot machines, lotteries, football tipping, and Lotto. Results indicated that problematic gamblers comprised 0.6% of the adult population sample, more so for males than females (0.95% vs. 0.28% respectively). There were relatively low but significant correlations between degree of gambling and the established risk factors (gender, age, education). Gambling was also correlated with daily smoking.

Table 17: Problematic gambling diagnosed by DSM-IV in Norwegian adults (from Gotestam & Johansson, 2009)

<i>Prevalence</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>
Pathological gambling	0.15	0.21	0.09
At-risk gambling	0.45	0.74	0.19
Problematic gambling	0.60	0.95	0.28

A second study comprising 5,235 representative Norwegian adults were contacted by telephone (aged between 15 and 74 years) was conducted during 2002 with a response rate of 65% (Lund & Nordlund, 2003). The main screening instrument used was SOGS-R. To cross validate the data, the NODS instrument was also used (Gerstein *et al.*, 1999). Table 18 shows the percentages of diagnostic criteria according to SOGS-R and NODS. The NODS prevalence of problem gambling was about twice that of SOGS. Overall, these findings were similar to the first national prevalence survey.

Table 18: Percentage distributions according to SOGS-R & NODS criteria for problematic gambling in Norway (from Gotestam & Johansson, 2009)

		<i>At-risk gambling</i>	<i>Problem gambling</i>
NODS	lifetime	0.8	0.6
	point	0.4	0.3
SOGS-R	lifetime	0.7	0.3
	point	0.4	0.2

Because of the relatively high prevalence rate in the first survey of gambling shown in the youngest group of men, a gambling prevalence survey for children and adolescents was undertaken. This study was conducted in 1999 and published four years later (Johansson & Göttestam, 2003).

A representative sample comprising 10,000 phone numbers to households with expectations of a high proportion of youth aged 12–18 years was acquired from a survey company.

Another representative sample of 3,000 individuals aged 12–18 years was retrieved from the central person registry of Norway, for a postal survey. The response rate in the telephone interview group was 46%, and for the postal survey 45%. The final representative sample comprised 3,237 adolescents aged 12–18 years (51% males and 49 females; mean age = 15 years). One group of participants were interviewed by telephone (n = 1,913) and another group completed a postal survey questionnaire (n=1,324). Basic demographic information was also assessed (sex, age, schooling, work, etc.). For the assessment of pathological gambling, the DSM-IV was chosen. The proportion of respondents who had gambled was 82%. Of these, 25% played weekly (36% males; 13% females). Analysis of the main demographic variables revealed that there were only small deviations between the population proportions and the proportions in the studied sample. Problem gamblers comprised 1.8% (2.8% males and 0.7% females), with all problematic gambling comprising 5% of the sample. Important risk factors for lifetime problematic or pathological gambling were age and gender, individuals being aged 15-24 years.

**Table 19: Summary of key gambling prevalence surveys in Norway
(adapted from Gøtestam and Johansson, 2009)**

<i>Authors (year of publication)</i>	<i>Year data collected</i>	<i>Instrument</i>	<i>Sample size (age)</i>	<i>% Problem gambling</i>
Gotestam & Johansson (2003)	1997	DSM-IV	2,014 (18+ years)	0.15% (past year)
Lund & Nordland (2003)	2002	NODS	5,235 (15-74 years)	0.6% (lifetime) 0.3% (past year)
Johansson & Gotestam (2003)	1999	DSM-IV	3,237 (12-18 years)	1.76% (lifetime)
Johansson & Gotestam (2004)	1999	YDQ	3,237 (12-18 years)	1.98% (lifetime)
Johansson & Gotestam (2004)	1999	YDQ	3,237 (12-18 years)	2.7% (lifetime)
Gotestam <i>et al</i> (2004)	1999	LBS	5,251 (12-18+ years)	0.54% (lifetime adult) 5.6% (lifetime adolescent)
Rossow & Hansen (2003)	2002	LBS/ DSM-IV	11,960 (13-19 years)	3.2% (lifetime)
Lund & Nordland (2003)	2002	LBS	5,235 (12-18 years)	0.6% (lifetime)
Kavli & Bernsten (2005)	2005	CPGI	3,135 (18-30 years)	1.9% (lifetime)

As part of a larger study conducted examining youth in Norway (Rossow & Hansen, 2003) the two questions from the Lie/Bet Screen were used (Johnsen *et al*, 1997) along with DSM-IV Criterion 5 (chasing). A sample of 13,000 adolescents (aged between 13 and 19 years) was used for a study conducted in 2002. The response rate was 92%. In the final sample (n = 11,960), the prevalence of gambling problems was estimated to be 6% with two criteria, and was reduced to 3.2% with the use of three criteria (5.2% in males and 1% for females).

Another study by Kavli and Berntsen (2005) used the Canadian Problem Gambling Index (Ferris & Wynne, 2001), based on nine short questions. The sample comprised 3,135 participants, aged between 18 and 30 years. They reported that 1.9% had money gambling problems and that 3.6% were at risk to develop gambling problems. The key characteristics of the different epidemiological studies are outlined in Table 19.

Poland

In a recent review on gambling and problem gambling in Poland, Dzik (2009) reported that research related to the extent of gambling participation in Poland was very scarce and incomplete. Dzik reported that no prevalence studies of pathological gambling had ever been conducted in Poland on either a local or national level. Therefore, the rate of problem gambling in Poland remains unknown. However, Dzik speculated that the problem gambling rate to be lower in Poland than in Western Europe because of relative small popularity of gambling games other than lotto. His assertions were based on the gross gaming revenues and the number of gambling venues in Poland. Przespolewski (2005) also made similar arguments, claiming that pathological gambling has never been a serious social problem in Poland. Figures provided by the Polish lottery operator (*Totalizator Sportowy*) claim that over 60% of Poles play the lottery but these figures are unsubstantiated (Kiedrzyński, 2008).

Dzik (2009) did make reference to the fact that treatment centres in Poland were beginning to see problem gamblers turn up for treatment. He noted that problem gamblers living in bigger cities had a relatively good chance of finding help in addiction treatment centers and at GA meetings, and that they constituted “*the tip of the iceberg of Polish problem gamblers*”. There are no approximate estimates of the scale of gambling addiction in small Polish towns or in the countryside, although Dzik claimed “*thousands of Poles in less developed regions to have gambling problems*”. Poor living conditions, lower level of education, and the availability of a slot machine grey market are creating a potentially dangerous combination. Poland is clearly a country that needs a prevalence study and prevention campaigns. Currently, neither government nor local authorities are doing anything concerning problem gambling. Dzik (2009) concludes that the increasing availability of gambling opportunities in Poland will “*probably lead to an increasing number of individuals with gambling-related problems*”.

Portugal

Despite an extensive search of the academic literature and other Internet databases, there is almost nothing known empirically about gambling and problem gambling in Portugal. Country reports on gambling typically highlight the number of gaming machine outlets and

opportunities (e.g., 7,500-10,000 gaming machines down from 35,000 in the 1990s) rather than any information on gambling participation (Portugal Report for *Euromat*, 2007).

Romania

Lupu (2009) recently reviewed the empirical evidence on gambling and problem gambling in Romania. To date there have been no national gambling prevalence surveys although some regionalised research has been carried out. Lupu also claims that problem gambling has become an increasing problem in Romania and provided a profile of Romanian casino players based on interviews with Romanian casino personnel. He claims that casino gamblers are predominantly middle aged (both men and women) and that they come from all social categories. He claimed that most gamblers refuse to be called at home by the casino marketing department because they were afraid that their family might find out about their gambling. Casino gamblers main motivations were to get instant prizes and to get an adrenaline rush from playing. He speculated that this might be why roulette is so frequently played in Romanian casinos, as this game offers the highest percentage of prizes compared to initial stakes. However, he did add that there were also gamblers who were also attracted to casinos for the atmosphere – something which could not be found in other places.

Although there has been little research into adult gambling in Romania, there has been some research on adolescents. Lupu, Onaca and Lupu (2002) examined the prevalence of problem gambling using the GA-20 scale in three Romanian counties on 500 high-school students with ages between 14 and 19 years (57% female and 43% male). They reported that 34 schoolchildren (7%) were identified as problem gamblers (scoring 7 or more out of 20 on the gambling scale). Of these 34 individuals, most were male (n=28). The games most frequently played by Romanian teenagers were: poker (35%), football pools (56%), bingo (32%), basketball betting (6%), blackjack (3%), and roulette (3%).

Two-thirds of the sample gambled very frequently (64%) with 18% gambling rarely or very rarely. Most played in groups (82%) whereas the rest played alone (18%). The mean age at which the participants began gambling was 14 years. Findings also showed that 18% of the problem gamblers had alcoholic fathers who were alcoholics and 12% had fathers who were problem gamblers. No significant differences were found between problem and non-problem gamblers in relation to family income and social status.

In another study, Lupu, Boros, Miu, *et al* (2001) analysed the risk factors for problem gambling in 231 Romanian adolescents aged between 14 and 18 years. Using the GA-20 scale, Lupu *et al* (2001) categorised the participants into three groups: no-gambling/recreational gambling, occasional gambling (0-1 positive answers – Level 1); problematic gambling (2-7 positive answers – Level 2); pathological gambling (7-20 positive answers – Level 3). Results revealed that 34% were non-gamblers or only gambled very occasionally (Level 1); 54% were defined as problematic players (Level 2); and 12% were defined as pathological gamblers (Level 3). Risk factors for pathological gamblers included: parental divorce, serious physical illness in a family members, death of a family member, family break-up, psychological illness in a family member, sexual abuse, and being in a severe accident. Results also showed that 14% of problem gamblers used illegal drugs. Lupu *et al* (2001) identified two distinct types of pathological gambler:

- Adolescents from an unfavourable family and social environment, who had to deal with stress and trauma (e.g., neglect, physical, and/or sexual abuse). Here, gambling was a coping mechanism to deal with chronic stress.
- Adolescents from a favourable family and social environment with a medium to high income, where parents neglected the child because the parent worked too much. Here, gambling was a way to spend time and/or to attract a parent's attention.

Lupu (2009) noted that the significant prevalence of pathological gambling among Romanian adolescents in the study by Lupu *et al* (2001) has been confirmed by similar cases in Romanian child psychiatry clinics.

Russia

A recent review by Tsytsarev and Gilinsky (2009) examined the research evidence on gambling and problem gambling in Russia. Unfortunately, there is very little research in Russia and the only empirical study comes from a small attitudinal study by Kassinove, Tsytsarev and Davidson (1998) surveying 150 young male and female adults from various social groups in St. Petersburg. Kassinove *et al* hypothesised that Russians would have positive attitudes toward gambling due to the widespread availability of gambling activities, the promise of potentially large prizes, and the intermittent reinforcement underlying such games. They also hypothesised that males would have significantly more positive attitudes toward gambling than females.

Other variables were assessed including religion and religiosity, risk-taking, and liberal thinking. Results showed that Russian attitudes were found to be equally positive toward gambling in general, as well as toward the lottery, betting in casinos, and betting on horse races. Gender differences were minimal, and it was Russian women (rather than men) who reported more positive attitudes toward the lottery. Religiosity was not related to attitudes toward gambling. Liberalism and risk-taking were positively related to gambling activities.

Three-quarters of the sample (74%) indicated they had gambled at some point in their lives. Those who previously gambled had more positive attitudes toward gambling in general, toward the lottery, casinos, and horse races. This supports the importance of experience as part of the construct of attitude. Tsytsarev and Gilinsky (2009) speculated that if more opportunities to gamble become available, it is likely that attitudes toward gambling will become even more positive.

Tsytsarev and Gilinsky (2009) also note that it is extremely difficult to estimate the prevalence of problem gambling given there are no large-scale epidemiological studies. Tsytsarev contacted 50 leading Russian psychiatrists who participated in the World Congress of Dynamic Psychiatry (June, 2007). None of the psychiatrists provided any statistical data or information about Russian gambling treatment programmes. Only two published Russian addiction books have chapters on problem gambling (i.e., Starshenbaum, 2006; Mendeleovich, 2007), and the content is mostly based on Western research in addition to very small-scale Russian studies. However, these two chapters contain a lot of anecdotal evidence to support the hypothesis that in Russia, problem gambling is a cause of suicide, depression, and loss of

status for hundreds of thousands of people from all socio-economic classes. The authors of these two chapters also claim that in Russia, gambling and alcoholism are highly correlated.

The review by Tsytsarev and Gilinsky (2009) attempted to encapsulate the thoughts of Russian psychiatrists about pathological gambling. One of the leading researchers in the area of addictions in Russia is Korolenko (1991). He (and others) explain gambling in terms of manifestations of something else – the underlying major psychiatric disorders, such as affective disorders, depression, obsessive-compulsive disorder, personality disorders, anxiety and chemical dependencies such as alcoholism and drug abuse (Mendelevich, 2003).

Another Russian researcher, Nezmuydinov (2000; cf. Tsytsarev & Gilinsky, 2009), presented some data showing the high degree of comorbidity between pathological gambling and neuroses. According to this Russian research, comorbidity manifests in three forms: neurosis is based on an addictive behaviour such as gambling and is usually triggered by a psychological trauma; neurosis contributes to the development of the addiction, and the latter could be viewed as a pathological defence mechanism (i.e., a coping strategy); and addictive behaviour and neuroses develop separately but simultaneously since they might have same underlying causes.

Slovak Republic

A recent review by Zivny and Okruhlica (2009) overviewed the empirical research on gambling and problem gambling in the Slovak Republic. The most popular form of gambling in Slovakia based on money spent appears to be slot machines (see Table 20). There has been a substantial growth in the number of gambling machines in Slovakia over the last few years. Between 1997 and 2006, the number of gambling machines nearly doubled from 8,846 in 1997 to 16,129 in 2006 (Statistics of the Ministry of Finance, 2007).

Table 20: Amount of money spent in the Slovak Republic on specific gambling games (2006)

<i>Gambling form</i>	<i>Sum in thousands Euros</i>
Slot machines	521,323
Bet games	258,382
Electric roulette	257,647
Casinos	51,412
Internet games	38,647
Video games	31,529
Bingo	17,765

In Slovakia, although there is generally good statistical data in the area of drug addictions, the statistics on gambling addiction are almost non-existent (Zivny & Okruhlica, 2009). Some economic and technical data, such as a result of enforcement of legal measures concerning gambling (e.g., number of licences, premises, amount of money in this sector) are available, but the information concerning number of (problem) gamblers and their structure, remains unknown.

In the empirical literature, there are very few studies that deal with gambling or problem gambling in any detail. Zivny (1998) described characteristics (of an unspecified number) of problem gamblers at the Centre for Treatment of Drug Dependencies (CPLDZ) in Bratislava. The majority of problem gamblers were middle-aged men, mostly married and employed. A minority included several high school and university students and one child from a primary school. Only about 10% were female patients.

Nábelek, Gromová and Vongrej (2000) reported the demographics of 149 gamblers (147 men) being treated as in-patients at a psychiatric department at the F.D. Roosevelt Hospital in Banská Bystrica between the years 1993 and 1996. The gamblers primarily consisted of young men, with secondary education, the majority of which were from complete families, and who were above average in intelligence. The most popular form of problematic gambling was playing slot machines. Another study examined the comorbidity of gambling and psychoactive substance use in primary and secondary schools in district of Kysucké Nové Mesto (Kotrc, 2005). In a survey of 1,142 participants, 12% of primary schoolchildren reported they had gambled once, while 1.5% admitted gambling regularly. Among secondary schoolchildren, 15.5% of secondary school respondents reported that they played at least once, while 1.6% played regularly.

Zivny and Okruhlica (2009) concluded there were no valid and reliable data on the prevalence of problem gambling in Slovakia. However, they assumed that there were *“tens of thousands people with gambling-related problems”* in Slovakia. They also claimed that because there was a low awareness of problem gambling as an illness requiring treatment, the number of people being treated in Slovakia was currently very small.

Slovenia

In a recent review, Macur, Makarovi and Roncevic (2009) reviewed the literature on gambling and problem gambling in Slovenia. They noted that most of the research in Slovenia has examined casino gambling. Furthermore, most research has concentrated on western Slovenia (especially the Goriska region as this has the highest concentration of casinos the country). The first macro-type studies in Slovenia were mainly economic. For instance, Bole and Jere (2004) overviewed the slot machines gambling market for the Slovenian Ministry of Finance. However, the authors completely ignored the social impacts of gambling.

Prasnikar, Pahor and Knezevic (2005) examined the impact of gambling on deviance and family breakdown, and included some evidence from social surveys and qualitative research. Jaklic, Zagorsek, Pahor and Knezevic-Cvelbar (2006) were the first to apply the methodology of the U.S. National Opinion Research Centre (NORC) to evaluate the social costs of gambling. There have also been a few attempts to examine gambling from the psychological and/or psychiatric perspective (Dernovsek and Cebasek-Travnik, 2004; Jericek & Cebasek-Travnik, 2005). While the ‘micro’ perspective of psychiatric research has been characterised by a somewhat ‘anti-gambling’ orientation, the economic ‘macro’ perspective tends to be significantly more pro-gambling, claiming that there cannot be more than 1% of problem gamblers within the Slovenian population (Zagorsek, Jaklic & Zoric, 2007). Most recently, there has been a systematic overview of public opinion concerning gambling issues

(Makarovic & Zorec, 2007). Moreover, the macro level research of the social impacts of gambling began to focus more significantly on problem and pathological gambling. Because of the lack of available data, the studies that have tried to estimate the proportion of problem gamblers in the population have used certain approximations of the operational definitions. To date, there has been no research based on the representative sample for the population using established measuring instruments such as the SOGS and DSM-IV.

Based on those people who frequented casinos, Jaklic *et al* (2006) considered those who visited the casino at least once a week problem gamblers and those who visited it twice a week pathological gamblers. However, there are significant problems with such operational definitions and most scholars working in the gambling studies field would not accept such definitions of problem and pathological gambling. Therefore, the attempt to measure the social cost of problem and pathological gambling is limited in its scope. Using these operational criteria, Jaklic *et al* concluded there were just 172 problem gamblers and 74 pathological gamblers in Nova Gorica and an additional 77 problem and 17 pathological gamblers in the rest of Slovenia. This approximates to 0.18% problem gamblers and 0.08% pathological gamblers in the Goriska population. For the rest of Slovenia, the percentages are even lower (0.005% of problem gamblers and 0.001% of pathological gamblers in the rest of the Slovenian population). However, there are so many other weaknesses to this study that the results should be treated with extreme caution.

There are some other survey data available that indicate frequencies of casino visits but these data are only available for Nova Gorica, and not for Slovenia more generally. Using these survey data, Prasnikar *et al* (2005) concluded that there may be 3-4 % of people within the Nova Gorica local population who have gambling problems. The most recent study by Roncevic, Macur, Makarovic, *et al* (2007) used a combination of the already available survey data and some comparisons with the evidence from other countries with a roughly comparable gambling supply it was concluded that there was up to 3% of problem and pathological gamblers in the Goriska region. The equivalent maximum estimate for Slovenia was estimated to be 2.5%.

Considering the major investment by a number of gaming companies in Slovenia, Roncevic *et al* concluded that the increase of social costs does not depend on the gambling activity but more on the development (or underdevelopment) of socially responsible gambling policies implemented by the relevant stakeholders. Macur, Makarovi and Roncevic (2009) concluded in their review that the research on gambling in Slovenia to date demonstrates the growing interest in the social impact of gambling. Their review also demonstrated the need for a national gambling survey that would provide reliable data compared to the estimates that have been constructed on the basis of the available empirical data.

Spain

A recent review on gambling and problem gambling in Spain by Becoña (2009) noted that gambling participation was negligible before the early 1980s. Furthermore, Becoña (2009) asserts there are no up-to-date figures on national participation in gambling, although it appears to be rather high based on the regional studies that have been carried out. There have been many studies that have been carried out in various parts of Spain on the prevalence of problem and pathological gambling based on the DSM-III, DSM-III-R,

and/or South Oaks Gambling Screen (SOGS) (see Table 21 for an overview). Of these studies, several are representative of the autonomous regions of Catalonia, Andalusia and Galicia. The Catalanian study by Cayuela used the SOGS and found 2.5% of pathological or problem gamblers in the adult population.

A study by Becoña (1993a, 1993b) surveyed 1615 adults (aged over 18 years) in seven cities in Galicia. He reported a prevalence of 1.7% of pathological gamblers and 1.6% of problem gamblers. The highest rates of problem gambling were found in the largest cities (e.g., 3.5% and 3.3% of pathological and problem gamblers in Vigo). In this study, as in others, the predominant form of gambling in pathological gamblers was slot machines (50%), followed by the *primitiva* lottery, the ONCE lottery, bingo and *bonoloto*. The prevalence of gambling was twice as high in men than in women and was associated with age (39% of pathological gamblers were aged between 18 and 30 years). Those most affected tended to have lower educational level and lower income.

Table 21: Prevalence of pathological gambling in the Spanish adult population (adapted from Becona, 2009)

Study	n	Assessment instrument	Pathological gambler	Problem gambler	Sample
Cayuela (1990)	1,230	SOGS, lifetime	2.5%*		Representative of Catalonia
Becoña (1993b)	1,615	DSM-III-R,	1.7%	1.6%	Representative of 7 main cities last year in Galicia
Becoña & Fuentes (1995)	1,028	SOGS, lifetime	1.4%	2.0%	Representative of Galicia
Irurita (1996)	4,977	DSM-IV lifetime	1.7%	3.3%	Representative of Andalusia
Ramírez <i>et al</i> (1999)	3,000	SOGS, lifetime	1.6%	1.4%	Representative of Andalusia
Becoña (2004)	1,624	NODS			Representative of Galicia
		-Lifetime	0.9%	0.2%	
		-Last year	0.3%	0.3%	

* Indicates with the SOGS a figure of 2.5% for the combination of pathological gamblers and problem gamblers

Another study carried out in Galicia surveyed 1028 people (aged over 16 years) using the SOGS (Becoña & Fuentes, 1995). Results showed a prevalence of 1.4% of pathological gamblers and 2% of problem gamblers. Men were three times more likely than women to be pathological gamblers, and twice as likely to be problem gamblers. Problem gambling was more likely to affect younger people (43% were aged 16 to 24 years; 36% were aged 25 to 45 years) and those with elementary levels of education. Ramírez *et al* (1999) surveyed 3000 people in Andalusia using the SOGS and reported 1.6% were pathological gamblers and 1.4% were problem gamblers. Other studies have taken place in cities such as Seville (Legarda, Babio & Abreu, 1992), Algeciras (Tejeiro, 1998), and the Basque Country (Echeburúa, Báez, Fernández & Páez, 1994) all reporting similar results to those already

outlined. A review of studies carried out up to 1995 by Becoña and colleagues (1995) estimated the prevalence of pathological gamblers aged 18 years or over in Spain at 1.5% for pathological gamblers and 2.5% for problem gamblers (450,000 pathological gamblers and 750,000 problem gamblers nationally). They also added that the prevalence of pathological gamblers on slot machines alone would have been between 1.2% and 1.3%.

Post-1994, studies on the prevalence of problem gambling changed following the publication of the new DSM criteria (DSM-IV). In Spain, two epidemiological studies have utilised the DSM-IV (see Table 21). The first of these in Andalusia surveyed 4977 people (Irrurita, 1996). The percentage of pathological gambling was 1.8%, and problem gambling was 4.4%. The ratio of male to female problem gamblers was much higher than other studies (9:1 in pathological gamblers, and 4:1 in problem gamblers). In Galicia, Becoña (2004) surveyed 1624 people (aged over 18 years) using the NODS. The percentage of pathological gamblers (5+ in the NODS) was 0.9% for lifetime prevalence, and 0.3% in the previous 12 months (and all male). The percentage of problem gamblers (scoring 3-4 on the NODS) was 0.2% for lifetime prevalence, and 0.3% for the previous 12 months. By age, 20% of pathological gamblers were between 18 and 30 years, 3.3% were aged 31 to 45 years, 6.7% were aged between 46 and 64 years, and 40% were 65 years or over. In problem gamblers and gamblers at risk, 37.5% were between 18 and 30 years, and 50% were aged 46 to 64 years.

There has also been research carried out on adolescent gamblers in Spain although most of these have been on small samples (e.g., Arbinaga, 1996; Becoña, 1997; Becoña & Gestal, 1996; Becoña, Míguez & Vázquez, 2001a, 2001b; Villa, Becoña & Vázquez, 1997). The two most extensive studies are those by Becoña, Míguez and Vázquez (2001a, 2001b) who assessed pathological and problem gambling in primary and secondary school children in representative samples from Galicia. In children aged 11-16 years, they found 0.8% of pathological gamblers and 1.3% of problem gamblers using the DSM-IV-J. In this same sample, but using the SOGS-RA, they found 4.6% of problem gamblers and 10.1% of gamblers at risk. This shows the discrepancy in the results on using different assessment questionnaires. In children and young people aged 14 to 21 years, the SOGS-RA indicated 5.6% of problem gamblers and 8.2% of gamblers at risk. Finally, in a study with a large sample of university students from Madrid (aged 17-35 years), Vitoria (2003) found 4.5% of pathological gamblers and 6.6% of problem gamblers with the SOGS.

Spanish research has shown a number of risk factors are associated with gambling in Spain (Becoña, 1993a, 1996a, 1999; 2009; Echeburúa, 1992; Labrador & Becoña, 1994). These are:

- *High accessibility to various forms of gambling.* Spain has moved from a country where almost all types of gambling were prohibited to one in which the opportunity to gamble is almost everywhere. Furthermore it is heavily promoted, and is accepted as an easy way of making money. This is also linked to social tolerance and acceptance gambling.
- *Comorbidity between gambling and other types of addictive behaviour,* especially the consumption and abuse of and dependence on alcohol. Given that drinking frequently takes place in public places, such as bars, cafés, pubs and restaurants, and that there also slot machines in these places, the synergic effect is evident. In Spain, around 25% of pathological gamblers have problems of alcohol abuse or dependence (Becoña, 1993b, 2004; Rodríguez-Martos, 1989).

- *Vulnerability factors*, such as gender, age, personality characteristics (e.g., sensation-seeking, impulsiveness), and cognitive distortions (about chance, luck, skill).

Sweden

Jonsson and Rönnerberg (2009) recently provided a comprehensive overview of gambling and problem in Sweden. They reported that the first attempt to estimate the extent of gambling problems in Sweden was made by Kühllhorn *et al* (1995) who surveyed 13,861 people. To estimate the number of pathological and problem gamblers, they used economic criteria (size of stakes) based on interviews with people who identified themselves as pathological gamblers. The authors found that stakes of €5,400 per year and higher were characteristic for pathological gamblers, while lower stakes down to €3,250 per year characterised problem gamblers. Using these criteria on a sub-sample of 5,042 people, it was estimated that 0.4% were identified as problem gamblers and 0.2% as probable pathological gamblers.

Following this, a more traditional gambling prevalence study was performed by Rönnerberg and colleagues (Rönnerberg *et al*, 1999; Volberg, Rönnerberg, Abbott & Munck, 2001). The sample comprised 7,139 people (aged 15 to 74 years). Telephone interviews (or postal enquiries if the person was not reachable by phone) were used. A total of 7,139 out of 9,917 participated in the study, rendering a response rate of 71.9%. Of the sample, 89% were contacted by telephone and 11% by postal questionnaire. Using the SOGS-R, results showed that 1.4% were problem gamblers and 0.6% probable pathological gamblers in the past year. Using the lifetime SOGS-R, the corresponding figures were 2.7% and 1.2%. Problem gambling was four times more numerous among men than among women. It was also noted that the current (and lifetime) prevalence was highest in the two youngest age groups (15-17 years and 18-24 years). Problem gamblers started gambling at an earlier age than non-problem gamblers (16 years vs. 20 years). They most commonly gambled at casinos, and through gambling machines, card games, bingo, sports events, horse racing, and scratch card lotteries, in descending order.

Further to these two studies, the Swedish National Institute of Public Health has carried out a national questionnaire study on public health issues every year during 2004-2006 (Folkhälsoinstitutet 2004; 2005; 2006a). The questionnaire included questions concerning gambling habits. In 2004, 20,000 people (aged 16 to 84 years) were surveyed. In the following two years the samples were 10,000 people (also aged 16 to 84 years). Only three questions were used to identify risky gambling behaviours. If during the past 12 months the participant had (i) tried to reduce their gambling; (ii) experienced withdrawal symptoms; or (iii) lied about their gambling, they were classed as a 'risky' gambler. Results from the 2006 study estimated that 5% of males and 2% of females had a risky gambling habit. Male risky gamblers were more likely to be aged 16-29 years (8%). However, it was less common for female risky gamblers to be in the youngest age group (1%) than in the other age groups (2%). Risky gamblers were more likely to have a lower education, financial problems, and being born outside Europe. This pattern was the same for the two previous surveys.

In a follow-up to the study of Rönnerberg *et al* (1999), Jonsson, Andrén, Nilsson, Svensson, Munck, Kindstedt & Rönnerberg (2003) focused on what characterises gamblers who have a problem and distinguishes them from gamblers who have no obvious problem with their

habit. The authors used structured in-depth personal interviews combined with questionnaires on 578 individuals who participated in the Rönnerberg *et al* study. For every person with a gambling problem, a person of the same age and sex without gambling problems was selected. The latter participants constituted a control group. Neither the interviewer nor the interviewee knew which group the interviewee belonged to. Out of the total sample of 578 people, 324 (56%) took part in the study. Comparing the two groups, results showed that:

- *Childhood circumstances.* More people in the gambling problem group thought that their childhood had been socially unstable and had not been emotionally safe and secure.
- *Motivating factors.* More people in the gambling problem group displayed a greater tendency to gamble and to increase their gambling whilst in a positive emotional state. The gambling problem group also showed a higher extent of erroneous beliefs and dissociative experiences when gambling. Dissociative experiences, mistaken beliefs, and negative life experiences were most closely correlated with current gambling problems. People with a current gambling problem were more mistaken about their chances of winning and how skill can affect their chances.
- *Comorbidity.* More people in the gambling problem group reported depressive reactions compared to those in the control group as measured by the Beck Depression Inventory (BDI). More people in the gambling problem group reported a higher degree of risky or problematic drinking habits. A larger number of those in the gambling problem group had used drugs, but there was no difference concerning current drug abuse. Furthermore, there was no difference between the groups regarding current or previous use of nicotine.
- *Health.* There was no difference between the groups concerning general health measured by the General Health Questionnaire (GHQ-12).
- *Personality disorders.* More of the gambling problem group showed signs of personality disorders as indicated by the Trait and Character Inventory (TCI).
- *Gender differences.* More females than males with gambling problems experienced their childhood as insecure and socially unstable. Males increased their gambling more than women when in a positive emotional state, and males had a greater degree of mistaken beliefs as regards how skill influenced their chances of winning. Females reported more depressive reactions than males although males tended to have more alcohol problems than the females. Gender-specific patterns, such as men betting on the football pools and other sports and women opting for Bingo Lotto and instant lotteries, were very apparent among young people

A recent review by Jonsson and Rönnerberg (2009) attempted to examine what was known about the addiction potential of certain gambling forms in Sweden using the research data collected by Westfelt (2002, 2003, 2004). These were representative studies for people older than 17 years and living in the cities of Karlstad, Malmö or Sundsvall. The pooled data set contained over 11,000 participants. Five different groups (types of gambling) were created. This was done by choosing the individuals who played on: (i) VLTs, (ii) bingo, (iii) international casinos, (iv) restaurant casinos, or (v) dog/horse-racing. Westfelt used the SOGS (short version), DSM-IV, and Life Area Problems to measure gambling problems. Results showed that the highest degree of gambling problems was found among VLT and bingo players. The risk for gambling problems was 5-6 times more common among these groups compared to the other groups. Being male, young and having another ethnic background than Swedish also increased the risk of having a gambling problem. The results

in this study concerning gambling types were confirmed in a prospective longitudinal study (Westfelt, 2006a; 2006b).

Other data related to the question of problems associated with game type come from national helpline data. In 2005, the Swedish National Helpline for gambling problems received 1,016 calls from problem gamblers and 665 calls from relatives and friends of problem gamblers. Most problem gamblers were male (88%) and aged 15 to 24 years (33%) or aged 25 to 34 years (31%). The most problematic forms of gambling reported by problem gamblers were slot machines (35%), online poker (22%), various casino games (including Internet but excluding slot machines) (9 %) and horse race betting (6.5 %). Compared with 2004, the most major change was a large increase in online poker – an increase of 3% to 22% (Spelinstitutet 2006).

Switzerland

A recent overview by Häfeli (2009) on gambling and problem gambling in Switzerland reported that there was little empirical evidence of the Swiss gambling situation. To date, only one study has systematically analysed and evaluated Swiss gambling data. Künzi, Fritschi and Egger (2004) looked at statistics taken from Switzerland's periodic health survey (2002) and a population poll taken by the Swiss Federal Office of Justice (also 2002). Results indicated that over half of the Swiss population aged 18 years and over (56%) regularly participated in domestic lotteries, with 15% playing weekly, 12% playing monthly and 29% playing less than once a month. A small minority (7%) of the sample participated in offshore lotteries. Results also showed that over two-fifths (43%) had visited a casino at least once in their lives.

The following results of this survey relate to what were termed “frequent” players (i.e. those who gambled on a regular basis at least once a week). Using this definition one-fifth of the sample aged 18 years and over (21%) were frequent players. Furthermore, almost all of these were primarily lottery gamblers. Just over half of one percent (0.56%) played slot machines weekly with over two-thirds of these weekly slots gamblers playing them outside of casinos. Just over one-quarter of one percent (0.27%) gambled weekly in a casino. Regular (weekly) horse race betting comprised 0.46% to 0.69% of the sample.

Künzi *et al* (2004) defined frequent gamblers as having the following characteristics:

- *Gender and age:* Frequent players were more likely to be male (57%) than female (43%) and (in general) all age ranges were represented. Regular lottery players and horse race bettors were more likely to be aged 50 years or over, whereas slot machine players and casino gamblers tended to be a younger age group (40% below 35 years).
- *Nationality:* At least three-quarters of the weekly lottery players and horse race bettors were Swiss nationals. Approximately two-thirds of the weekly slot machine and casino gamblers were Swiss nationals.
- *Education and income:* Frequent players were found to be across all education strata. However, there was a higher representation of players of a lower education level and a correspondingly lower representation of better-educated players. Frequent players are also to be found across all income groups.

- *Comorbidity*: Frequent players tended to consume more alcohol and to smoke more than the general population aged 18 years and over although this was not the case for the consumption of illegal substances.
- *Psychological wellbeing*: There was no difference in psychological wellbeing between frequent lottery players and horse race bettors and the general population aged 18 years and over. However, frequent slot machine and casino gamblers scored lower in this respect than the population as a whole.

The only Swiss gambling prevalence data comes from two studies by Osiek and colleagues (Osiek, Bondolfi & Ferrero, 1999; Osiek & Bondolfi, 2006). The studies comprised a random telephone poll of 2,526 people (aged 18 years and over) in 1999 and 2,803 people in 2006. Both samples were administered the SOGS to assess problem gambling. Comorbidity of gambling with alcohol consumption was also assessed. Results indicated that 97% (1999)/96.7% (2006) were non-gamblers/occasional gamblers, 2.2% (in both 1999 and 2006) were classed as problem gamblers or potential pathological gamblers (SOGS score 3 or 4) and 0.8% (1999)/1.1% (2006) were probable pathological gamblers (SOGS score 5 and over). The studies also reported a high comorbidity between alcohol and pathological gambling. The study also demonstrated a link between game availability (especially slot machines outside casinos).

Häfeli (2009) notes that Swiss addiction services also provide counseling to clients with gambling dependency issues. Switzerland possesses only two specialist gambling dependency counselling centres (in Basel and Lausanne) but no national telephone helpline. There are also a number of active self-help groups across (between three and six groups at any one time). Künzi *et al* (2004) examined the demand for treatment offered by drop-in counselling services using figures collected directly from the specialist addiction counselling services. This study showed a sharp increase in the number of people seeking help between 1998 and 2003 (146 people up to 751 people). Künzi *et al* (2004) estimated the total demand for help as being between 1000 and 1500 people in 2003. According to Häfeli (2009), experts feared a rise in the numbers of problem gamblers in Switzerland following the ending of the casino prohibition. However, a study conducted by the Häfeli and Schneider (2003) reached the conclusion that there was a lack of integrated policy-making at national level to provide a systematic and coordinated programme of help for problem gamblers.

Conclusions

Looking at the data in this report, it would appear that across most jurisdictions, Lotto is the most popular adult game in most countries (Jonsson, 2006; Lund & Nordlund, 2003; Wardle *et al*, 2007). However, results on the most popular game among adolescents differs somewhat between countries. For example, although private card games and games of personal skill with family and friends are popular, the trend seems to be that wherever commercial games (such as the lottery or slot machines) are widely available, adolescents increase their participation even though in most jurisdictions they may not be legally permitted to play these games. This pattern is revealed in adolescent studies in Great Britain, Finland, Iceland and Norway.

Table 22: Summary of most recent adult gambling prevalence surveys by country

<i>Country</i>	<i>Researchers</i>	<i>Year</i>	<i>Instrument</i>	<i>Prevalence</i>	<i>PG prevalence*</i>
Belgium (n=3,002)	Druine <i>et al</i>	2006	DSM-IV	60% (past year)	2% (past year)
Denmark (n=8,153)	Bonke & & Borregaard	2006	SOGS-RA NODS	[Not reported]	1.7% (lifetime) 0.7% (lifetime)
Estonia (n=2,005)	Lansoo	2006	SOGS	75% (past year)	6.5% (past year)
Finland (n=5,013)	Ilkas & Turja	2003	SOGS-R	74% (past year)	5.5% (past year)
Germany & Stöver	Buth	2008	DSM-IV	39% (past year)	1.2% (past year)
Great Britain	Wardle <i>et al</i>	2007	DSM-IV CPGI	68% (past year)	0.6% (past year) 0.5% (past year)
Iceland (n=3,358)	Olason <i>et al</i>	2006	DSM-IV	69% (past year)	1.1% (past year)
Lithuania (n=1,002)	Gambling Commission	2006	[None used]	30% (lifetime)	[Not assessed]
Netherlands (n=5,575)	De Bruin <i>et al</i>	2006	SOGS	87% (lifetime)	2.5% (lifetime)
Norway (n=5,235)	Lund & Nordlund	2003	NODS	[Not reported]	1.4% (lifetime)
Sweden (n=7,139)	Volberg <i>et al</i>	2001	SOGS-R	[Not reported]	2% (past year)
Switzerland (n=2,803)	Osiek <i>et al</i>	2006	SOGS	[Not reported]	3.3% (lifetime)

*Problem gambling relates to the percentage of potential problem gamblers added to the percentage of probable pathological gamblers.

Problem gambling rates in Europe appear to be similar to rates found elsewhere (typically 0.5%-2%), although a few countries (e.g., Estonia, Finland, Switzerland) have problem gambling prevalence rates of above 3%. The most recent national population based study on adults in the United States suggests that current problem gambling prevalence rates ranged from 1.3% (based on a DSM-IV screen) to 1.9% (based on SOGS) (Welte *et al*, 2002). However, there is a problem with comparing these prevalence figures to European findings

as the prevalence rate of problem and pathological gambling varies considerably between instruments. The majority of the studies in North America used the SOGS, but the SOGS or its derivatives tend to yield higher prevalence rates than DSM-IV derived measures (Abbott & Volberg, 2006; Derevensky & Gupta, 2000; Neal, Delfabbro, & O’Neil, 2005; Olason, Sigurdardottir & Smari, 2006; Stinchfield, 2002). A conservative solution is to compare the results from problem gambling surveys with other surveys that have used the same or similar type of screening instruments (e.g., different instruments based on the DSM-IV criteria).

Table 23: Summary of the most recent adolescent gambling prevalence surveys by country

Country	Study	Year	Instrument	Gambling prevalence	Problem gambling prevalence
Belgium (n=38,357)	Kinable	2006	[None used]	40% (lifetime)	[Not assessed]
Great Britain (n=8,017)	MORI/ IGRU	2006	DSM-IV-MR-J	73% (lifetime)	3.5% (lifetime)
Iceland (n=3,511)	Olason	2006	DSM-IV-MR-J	70% (past year)	5.6% (past year)
Lithuania** (n=835)	Skokauskas <i>et al</i>	2007	DSM-IV-MR-J SOGS-RA	83% (lifetime)	13% (lifetime) 15% (lifetime)
Norway (n=5,235)	Lund & Nordlund	2003	LBS	[Not reported]	1.3% (lifetime)
Romania (n=500)	Lupu <i>et al</i>	2002	GA-20	82% (lifetime)	7% (lifetime)
Spain** (not reported)	Becona <i>et al</i>	2001	DSM-IV-J SOGS-RA	[Not reported]	2.1% (lifetime) 14.7% (lifetime)

*Problem gambling relates to the percentage of potential problem gamblers added to the percentage of probable pathological gamblers.

**Used regional (not national) samples

Relatively few studies in Europe report current prevalence rates for probable pathological gambling but the results from these studies suggest broadly similar rates (Iceland, Sweden, Norway, Great Britain, Denmark; see Table 22). For example, the current prevalence rates of probable pathological gambling (DSM-IV \geq 5) in Britain was 0.3%, in Sweden 0.3%, in Norway 0.3%, in Iceland (0.6%), and in Denmark 0.1% (Bonke & Borregaard, 2006; Lund & Nordlund, 2003; Orford *et al*, 2003; Rönnerberg *et al*, 1999).

Relatively few studies in Europe report current DSM-IV prevalence rates for probable pathological gambling but the results from these studies suggest similar rates (Olason & Gretarsson, 2009; Götestam & Johansson, 2001; Lund & Nordlund, 2003; Wardle *et al*, 2007;

Rönnerberg *et al.*, 1999). For example, the current prevalence rates of probable pathological gambling (DSM-IV \geq 5) in Britain was 0.3%, in Sweden 0.3%, in Norway 0.3% and in Denmark 0.1% (Bonke & Borregaard, 2006; Lund & Nordlund, 2003; Orford *et al.*, 2003; Rönnerberg *et al.*, 1999).

Results from studies in different European countries suggest that problem gambling among adolescents is considerably higher than among adults (e.g. Olason & Gretarsson, 2009; Becona, 1997; Fisher, 1999; Johansson & Göttestam, 2003; Moodie & Finnigan, 2006; Rossow & Hansen, 2003; Wood & Griffiths, 1998). This has also been reported in numerous North American studies. Although problem gambling among adolescent samples tends to be higher than in adult samples, many of the participants used in these studies are either local surveys and/or use opportunistic or non-representative samples. However, in countries where there have been large samples with good representation (e.g., Great Britain), the problem gambling prevalence rate among adolescents is at least four to five times higher than in the adult population.

The use of DSM-IV-J/DSM-IV-MR-J instruments in youth studies in North America, Australia and Europe vary widely. For example, the most recent prevalence rates of adolescent problem gambling (DSM-IV \geq 4) in England and Wales was 3.5% (MORI/IGRU, 2006), in Scotland 9% (Moodie & Finnigan, 2006), in Canada between 3.4% to 4.7% (Derevensky & Gupta, 2000; Gupta & Derevensky, 1998) and in Australia 4.4% (Delfabbro, Lahn & Grabosky, 2005). Similar prevalence rates have though been reported in Spain, Iceland and Norway.

In terms of problem gambling by type of gambling there appear to be some consistent trends across European jurisdictions. The recent national prevalence survey in Germany (Meyer & Hayer, 2009) showed that of all the problem gamblers, slot machines were the most problematic with over 20% of all problem gamblers reporting that electronic gaming machines (EGMs) was their primary type of gambling (9% gambling machines; 7% casino slot machines; 5% amusement with prizes machines). Other prevalence studies in Europe have reported that problem gamblers were most likely to be EGM players including Estonia (Lansoo & Niit, 2009), Holland (Goudriaan, de Bruin & Koeter, 2009), Norway (Göttestam & Johansson, 2009), Sweden (Jonsson & Rönnerberg, 2009) and Switzerland (Häfeli, 2009). Other studies have also found similar results with adolescents reporting that the main type of problem gambling among adolescents is related to EGM play in several countries, including Great Britain (Griffiths, 2009), Iceland (Olason & Gretarsson, 2009) and Lithuania (Skokauskas, 2009).

In Great Britain, the national gambling telephone helpline operated by *GamCare* has consistently shown that EGM gamblers account for a notable proportion of calls. In the latest report overviewing the 2007 call data (GamCare, 2008) it was reported that 25% of all calls concerned FOBTs and a further 20% concerned fruit/slot machines ($n = 37,806$ calls). Thus, calls about EGMs comprised the most calls for help of all types of gambling. As for location, more than half of the callers said they gambled in betting shops, though callers often disclosed more than one facility. However, caution may be required as these results tend to provide an indication of an association between problem gambling and machines and not a definitive proof. In addition information on displayed around some forms of gambling

(e.g., stickers on machines) may be more prominent than for others forms.

Internationally, a growing proportion of problem gamblers contacting helplines or assessing treatment are identifying EGMs as their primary form of gambling (Abbott *et al*, 2004, Productivity Commission 1999, Smith & Wynne 2004). This finding has been confirmed in Europe (Hayer, Mayer and Griffiths, in press) where many countries reported that problem EGM gamblers were most likely to seek treatment and/or contact national gambling helplines including 60% of gamblers seeking help in Belgium (Druine, 2009), 72% in Denmark (Linnet, 2009), 93% in Estonia (Laansoo & Niit, 2009), 66% in Finland (Jaakkola, 2009), 49.5% in France (Valleur, 2009), 83% in Germany (Meyer & Hayer, 2009), 75% in Spain (Becoña, 2009), and 35% in Sweden (Jonsson & Rönnerberg, 2009). Although no figures were provided, it was also reported that the “vast majority” of all those attending various treatment programmes in Slovakia were EGM gamblers (Zivny & Okruhlica, 2009). In Switzerland, Häfeli (2009) reported that of all the 2,443 self-exclusions, over three-quarters (78%) were for slot machine gamblers.

Literature reviews by both Livingstone and Woolley (2008) and Parke and Griffiths (2007) concluded that it is widely held that gaming machines are more likely to lead to problem gambling than other forms of gambling. They also suggested that a range of structural characteristics impact on gambling behaviour as pointed out for many years by other authors (e.g., Griffiths, 1993; 1999). Relevant primary structural characteristics include the core technology of the EGM, i.e., the reinforcement schedule which determines the number and scale of reinforcement intervals (e.g., payout intervals) and conditions players to game operation, as well as the configuration of line betting (single v multiple lines), credit value (as virtual representation of money), the reel symbol ratio, accompanying bank note acceptors and spin speed (i.e., event frequency). Secondary characteristics include lighting, colour and sound effects (e.g., music, verbal interaction, sound of winning coins), machine theme, etc (Parke & Griffiths, 2007). The complex interrelationships between these structural characteristics produce interactive effects that may shape gambling behaviour, including the production of harm as measured by problem gambling segments. Some authors claim that available research demonstrates that material change to structural characteristics can in some circumstances lead to transformation of gambling behaviour (Parke & Griffiths, 2007; Livingstone & Woolley, 2008).

Reviews of the literature reveal that the number of correlates or potential risk factors of problem gambling are numerous, and it is possible that different combinations of a number of factors may explain the development of problem gambling for different individuals. Results from cross-sectional studies can be useful in terms of estimating the potential importance of such factors, although experimental and/or longitudinal studies are necessary for causal explanations. In general, the European data show that problem gamblers invest more time, money and usually participate in a larger number of games than non-problem gamblers (e.g., Wardle *et al*, 2007). Problem gambling also seems to be more strongly associated with certain types of gambling than others. Research findings indicate that continuous games with an element of skill or perceived skill are more strongly associated to problem gambling than other types of games (Dowling, Smith & Thomas, 2005; Griffiths, 1999; Griffiths & Wood, 2004; Productivity Commission, 1999). Because of the lack of good data across Europe as a whole, there is a lack of correlation between levels of problem gambling and the type of market that gambling activity occurs in.

Gambling is a relatively new emerging field of education and research. Some may argue that the existing knowledge base for the formulation of evidence-based policies is small (especially when compared with other potentially addictive behaviours). Although there is growing research worldwide on problem gambling, at a societal level, the economic and social impacts of gambling, its role in public policy and its public health implications are under-researched (Galea, 2008). Systematic research strategies and programmes underpinned by independent decision-making about information needs and priorities, transparent processes, stakeholder input and widespread dissemination of research results is needed not only across Europe but worldwide.

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Brief biography of the report author

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Dr. Mark Griffiths is a Chartered Psychologist and Professor of Gambling Studies at the Nottingham Trent University, and Director of the *International Gaming Research Unit*. He is internationally known for his work into gambling and gaming addictions and has won many awards including the American 1994 **John Rosecrance Research Prize** for “*outstanding scholarly contributions to the field of gambling research*”, the 1998 European **CELEJ Prize** for best paper on gambling, the 2003 Canadian **International Excellence Award** for “*outstanding contributions to the prevention of problem gambling and the practice of responsible gambling*” and a North American 2006 **Lifetime Achievement Award For Contributions To The Field Of Youth Gambling** “*in recognition of his dedication, leadership, and pioneering contributions to the field of youth gambling*”.

He has published over 210 refereed research papers, two books, over 55 book chapters and over 550 other articles. He has served on numerous national and international committees (e.g. *BPS Council, BPS Social Psychology Section, Society for the Study of Gambling, Gamblers Anonymous General Services Board, National Council on Gambling* etc.) and is a former National Chair of *Gamcare*. He also does a lot of freelance journalism and has appeared on over 1500 radio and television programmes since 1988.

He has been the keynote speaker at national gambling conferences in the UK, USA, Canada, Australia, Germany, Spain, Sweden, Norway, Denmark, Ireland, Finland, Poland, Italy, Holland and Belgium. He has also given keynote addresses to the US National Academy of Sciences (Washington DC), and the US National Center for Addiction (New York). He has also acted as a consultant for many Government bodies including the *Gambling Board for Great Britain, Gambling Commission, UK Home Office, Department of Culture, Media and Sport, Department of Health, Victorian Casino and Gaming Authority* (Australia) and various international Governments (including the US, Australia, Sweden, Norway and Finland). In 2004 he was awarded the **Joseph Lister Prize for Social Sciences** by the *British Association for the Advancement of Science* for being one of the UK’s “*outstanding scientific communicators*”. His most recent awards are the 2006 **Excellence in the Teaching of Psychology Award** by the *British Psychological Society* and the **British Psychological Society Fellowship Award** for “*exceptional contributions to psychology*”.