

Gambling in Western and Eastern Europe: The Example of Hungary

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Abstract The history of gambling in post-socialist countries is noticeably different from that of other countries in Europe. The goal of this study was therefore twofold: Firstly, to systematically review all European epidemiological studies related to excessive gambling in the general adult population, and secondly, to provide an overview of the state of gambling in Hungary based on the first ever nationwide representative survey, setting the results against the backdrop of the earlier European studies. A systematic review was carried out of European gambling studies which focus on a representative adult general population. Hungarian data was obtained from the National Survey on Addiction Problems in Hungary general adult population survey ($N = 2,710$). Pathological gambling was measured by the South Oaks Gambling Screen. Lifetime prevalence of excessive gambling (problem and pathological gambling) in the general adult population of European countries varies between 1.1% (Italy and Spain) and 6.5% (Estonia). In Hungary, the prevalence of problem gambling is 1.9%, with pathological gambling at 1.4%. The socio-demographic characteristics of the results are similar to those of other European countries. Using epidemiological data from the general adult populations of two post-socialist nations, it was possible to compare the results with data from 12 other European countries. Based on the

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data available, the extremely rapid liberation of the gambling market in the post-socialist countries has led to a similarly swift escalation in associated gambling problems.

Keywords Gambling · Epidemiology · Systematic review · National representative survey · Comparison

Introduction

Pathological gambling is a significant worldwide public health problem, although remarkable differences between countries and cultures can be found. Despite certain methodological problems hindering these comparisons (definitional differences, dissimilar sampling methods or assessment tools etc.), surveys are still able to illustrate significant differences occurring between or even within the countries observed (Stucki and Rihs-Middel 2007). Studies conducted in the United States provide good examples of such discrepancies in the incidence of pathological gambling within a single country. For instance, while in Nevada, a state whose economy depends greatly on gambling, a lifetime prevalence of pathological gambling of 3.5% was discovered (Volberg 2002), levels were only 1.6% in Louisiana (Vogel and Ardoin 2002) and 0.9% in Oregon (Volberg 2001). Differences also exist between individual Western European countries (Meyer et al. 2009), while significant variation between regions of Spain has also been demonstrated (Becoña 1997). Methodological as well as cultural factors are thought to be responsible for these differences.

Regarding this cultural variation, the divergent evolutionary pathways of gambling in Western and Eastern Europe, particularly in post-socialist countries, cannot be emphasized enough. In the latter, the gambling market was opened only 20 years ago; opportunities in the socialist-communist era were highly limited. The comparison is clouded however by the fact that while in Western Europe numerous general and special population surveys have been carried out in the last few decades in order to estimate the incidence of problem and pathological gambling, in Eastern-Central Europe and the former socialist countries of the Baltic States, only a few studies have been made and those only in the past few years (Meyer et al. 2009). The main objectives of the present study are firstly to describe the gambling patterns of a Central-Eastern European country, namely Hungary, whose gambling traditions and cultural, historical, and economic background differ greatly from those of Western European countries, and secondly to make a comparison between Hungary and those countries which have a longer tradition of gambling.

The History of Gambling in Hungary

After World War II, political and ideological views of gambling underwent fundamental changes. Socialist ideology at the time, which emphasized the importance of equality, was non-compatible with the idea of potential individual enrichment by means of luck, and this led to the abolishment of most types of gambling (with the exception of betting on horses, which although from an ideological viewpoint was also regarded as deviant behavior, survived in the socialist era). In 1947, however, the Toto Pools was introduced to help raise the revenue required for the preparation of sportsmen for the 1948 Olympic Games, and to finance their journey to London. In 1957 the National Lottery was reintroduced. These two games represented the only possibilities for gambling for several decades. The Lottery gained vast popularity almost instantly because not only did it provide an opportunity for

escaping the enforced 'equality', but the monthly prize draws also presented the hope of acquiring scarce luxury goods, whose availability was highly limited in the socialist economic system (e.g. flats, holiday houses, cars, televisions and other domestic appliances). The importance of the 'valve' function of the Lottery can be seen by the 250,000 prizes awarded to players over the following 20 years.

The Hungarian gambling market opened up after the political shift at the beginning of the 1990s. Besides the growing number of lottery-type games, scratch cards, sports betting, casinos and several gambling halls also became available in Hungary during this period, providing a range of gambling opportunities equal to that of Western Europe in a relatively short time (Demetrovics 2009).

Goal of the Study

Based on their contrasting developmental histories of gambling, the question arises as to whether now, nearly 20 years after the abovementioned changes, Hungary and other post-socialist countries of Eastern Europe are currently experiencing the same patterns of gambling problems as Western European countries. The goal of the study is in this sense bilateral. On the one hand, it aims (1) to present a systematic review of all European epidemiological studies related to pathological gambling in the general adult population, and on the other (2) to provide an overview of the gambling situation in Hungary, based on the first ever nationwide representative survey, setting the results within the existing framework of earlier European studies. We consider the combination of the Hungarian data and the systematic review a good basis for the exploration of potential similarities and differences between a former socialist country and Western Europe, with their dissimilar cultural and historical roots.

Pathological Gambling in Europe: A Systematic Review

Search Strategy

The objects of our search were those European epidemiological studies that deal with the prevalence of *problem and pathological gambling in representative adult general population samples*. In order to reveal the European gambling situation, a systematic review of international literature was carried out. Searches using the keyword 'gambling' were made in the following databases: 'PsycInfo', 'Medline', 'PubMed' and 'Science Direct'. By December 31, 2009, 4,562 hits on PsycInfo, 2,606 on Medline, 2,968 on PubMed and 1,016 in the database of Science Direct were identified. By reviewing the abstracts, publications providing relevant data on problem or pathological gambling were selected, with hits overlapping two or more databases accounted for. Of the 149 studies identified, 44 dealt with a European population.

Reviewing these 44 articles, those that did not fit the initial search criteria (adult general population and representative sampling) were subsequently excluded, while the electronic search was also supplemented by a manual search. This consisted of reviewing the reference lists of each study found, resulting in the addition to our database of all those papers that had not been found during the original electronic search. A search was also made within a recent book describing the state of problem and pathological gambling in Europe (Meyer et al. 2009). In total, 56 publications were identified as fitting the search criteria, reporting data from 31 epidemiological studies from 13 separate countries (Table 1).

Table 1 Studies identified in the systematic review

Country	References	Year of research	N	Sample characteristics	Method	Lifetime prevalence	Past year prevalence
Belgium	Druine et al. (2006); Druine (2009)	2006	3,002	National, representative, from 16 year-olds	DSM-IV	–	Pathological: 0.4% problem: 1.6%
Denmark	Bonke and Borregaard (2006, 2009); Linnet (2009)	2005	8,153	National, representative, age between 18 and 74 years	SOGS-R, NODS	NODS: pathological: 0.3% problem: 0.4% SOGS: pathological: 0.5% problem: 1.2% Pathological: 2.4% problem: 2.6%	NODS: pathological: 0.1% problem: 0.3% SOGS: pathological: 0.2% problem: 0.8%
Estonia	Faktum Uuringukeskus (2004); Laanso and Niit (2009)	2004	986	National, representative, age between 15 and 74 years	SOGS	–	–
	Laanso (2006); Laanso and Niit (2009)	2006	2,005	National, representative, age between 15 and 74 years	SOGS	Pathological: 3.4% problem: 3.1%	–
Finland	Ilkas and Turja (2003); Jonsson (2006)	2003	2,013	National, representative, from 15 year-olds	SOGS	Pathological: 1.5% problem: 4.0%	–
	Aho and Turja (2007); Jaakkola (2009)	2007	5,008	National, representative, from 15 year-olds	SOGS-R	–	Pathological: 1.0% problem: 2.1%
Germany	Buth and Stöver (2008)	2006	7,980	National, representative, age between 18 and 65 years	DSM-IV	–	Pathological: 0.56% problem: 0.64%
	Bühninger et al. (2007)	2006	7,817	National, representative, age between 18 and 64 years	DSM-IV	–	Pathological: 0.20% problem: 0.29%
	Bundeszentrale für gesundheitliche Aufklärung (BZgA) (2008); Meyer and Hayer (2009)	2007	10,001	National, representative, age between 16 and 65 years	SOGS	–	Pathological: 0.19% problem: 0.41%

Table 1 continued

Country	References	Year of research	N	Sample characteristics	Method	Lifetime prevalence	Past year prevalence
Great Britain	Sproston et al. (2000)	1999	7,680	National, representative, from 16 year-olds	SOGS, DSM-IV	SOGS: pathological: 0.8% problem: 1.3% DSM: pathological: 0.6% problem: 2.9%	Among past year gamblers: pathological – SOGS: 1.2% pathological – DSM: 0.8%
	Wardle et al. (2007); Griffiths et al. (2009); Griffiths (2009)	2007	9,003	National, representative, from 16 year-olds	DSM-IV, PGSI	PGSI: pathological: 0.5% problem: 1.4% DSM-IV: pathological: 0.6% problem: 4.5%	Among past year gamblers: pathological – PGSI: 0.8% pathological – DSM: 0.9%
Iceland	Ólason et al. (2005); Jonsson (2006)	2000	1,057	National, representative, from 16 year-olds	NODS	Pathological: 0.6% problem: 0.7%	–
	Ólason et al. (2005); Jonsson (2006); Ólason and Gretarsson (2009)	2005	4,808	National, representative, from 18 year-olds	PGSI, DIGS	Pathological: 0.5% problem: 1.1%	–
Italy	Biganzoli et al. (2004); Croce et al. (2009)	2003-2004	1,093	Pavia region (North-Italy) representative, age between 18 and 74 years	SOGS	Pathological: 0.4% problem: 0.7%	–
The Netherlands	De Bruin et al. (2006); Goudriaan et al. (2009)	2004	5,575	National, representative, from 16 year-olds	SOGS	Pathological: 1.0% problem: 1.5%	Pathological: 0.3% problem: 0.6%
Norway	Götestam and Johansson (2003); Götestam et al. (2004)	1997	2,014	National, representative, from 18 year-olds	DSM-IV	Pathological: 0.15% problem: 0.45%	–

Table 1 continued

Country	References	Year of research	N	Sample characteristics	Method	Lifetime prevalence	Past year prevalence
	Lund (2006); Jonsson (2006); Göttestam and Johansson (2009); Olason and Gretaarsson (2009)	2002	5,235	National, representative, from 15 year-olds	NODS, SOGS	NODS: pathological: 0.6% problem: 0.8% SOGS: pathological: 0.3% problem: 0.7% Pathological: 0.6% problem: 1.9%	NODS: pathological: 0.3% problem: 0.4% SOGS: pathological: 0.2% problem: 0.4% Pathological: 0.3% problem: 1.2%
	Bakken et al. (2009)	2007	3,482	National, representative, age between 16 and 74 years	NODS		
Spain	Cayuela (1990); Becoña (1996)	1990	1,230	Catalonia region, representative	SOGS	Pathological and problem: 2.5%	–
	Legarda et al. (1992)	No data	598	Sevilla, representative from 18 year-olds	SOGS	Pathological: 1.7% problem: 5.2%	–
	Becoña (1993); Becoña (1996); Becoña et al. (1996)	No data	1,615	Galicia region, representative, from 18 year-olds	DSM-III	–	Pathological: 1.7% problem: 1.6%
	Becoña and Fuentes (1995)	1993	1,028	Galicia region, representative, from 16 year-olds	SOGS	Pathological: 1.36% problem: 2.04%	–
	Irurita (1996); Becoña (1997)	No data	4,977	Andalucia region, representative	DSM-IV	Pathological: 1.8% problem: 4.4% Pathological: 0.92% problem: 0.18%	–
	Becoña (2004)	2001	1,624	Galicia region, representative, from 18 year-olds	NODS – NORC DSM-IV		Pathological: 0.31% problem: 0.25%
	Tejero (1998); Arbinaga (2001)	No data	419	Algeciras, representative from 18 year-olds	No data	Pathological: 1.9% problem: 3.8%	–
	Arbinaga (2000a, b); Becoña (2009)	1999	486	Punta Umbria (Huelva region), representative from 18 year-olds	SOGS		Pathological: 3.5% problem: 4.9%

Table 1 continued

Country	References	Year of research	N	Sample characteristics	Method	Lifetime prevalence	Past year prevalence
Sweden	Kühnlhorn et al. (1995); Jonsson (2006)	1990	5,042	National, representative	Economic criteria (size of stakes)	Pathological: 0.2% problem: 0.4%	–
	Volberg et al. (2001); Abbott et al. (2004); Jonsson and Rönnerberg (2009)	1997-1998	7,139	National, representative, from 15 year-olds	SOGS	Pathological: 1.2% problem: 2.7%	Pathological: 0.6% problem: 1.4%
Switzerland	Bondolfi et al. (2000, 2002)	1998	2,526	National, representative, from 18 year-olds	SOGS	Pathological: 0.8% problem: 2.2%	Pathological: 0.2% problem: 1.0%
	Brodbeck et al. (2007); Häfeli (2009)	2002	6,385	National, representative, from 14 year-olds	NODS	Pathological: 0.3% problem: 0.6%	–
	Bondolfi et al. (2008)	2005	2,803	National, representative, from 18 year-olds	SOGS	Pathological: 1.1% problem: 2.2%	Pathological: 0.5% problem: 0.8%

SOGS South Oaks Gambling Screen (Lesieur and Blume 1987), *SOGS-R* South Oaks Gambling Screen Revised (Lesieur and Blume 1993), *DSM-III* DSM-III criteria (American Psychiatric Association 1987), *DSM-IV* DSM-IV based questionnaire to assess problem and pathological gambling (Beaudoin and Cox 1999), *NODS* NORC Diagnostic Screen for Gambling Problems (Gerstein et al. 1999), *PGSI* Canadian Problem Gambling Severity Index (Ferris and Wynne 2001), *DIGS* Diagnostic Interview for Gambling Severity (Stinchfield 2003)

Main Characteristics of the Studies

Although pathological gambling is not a new phenomenon, awareness of the extent of the problem has arisen only recently, given that the first population studies mapping the disorder were performed only in the last decade of the twentieth century. Of the 31 research investigations identified during our review, 12 were carried out before 2000, originating from a total of five countries (seven in Spain, two in Sweden and one each in Great Britain, Norway and Switzerland). The very first studies were carried out in Spain, and indeed this is the most common origin of the papers in the review. However, all of these were regional, not nationwide surveys. The novelty of adult population gambling studies is underlined by the fact that one third of the investigations identified as suitable (ten studies from eight countries) were undertaken in 2005 or later.

In terms of geographical distribution, *Northern Europe* provides the widest range of data of the six regions of Europe. Studies have been carried out in all four Scandinavian states, Iceland and Estonia, with data regarding the gambling habits of their adult populations absent only from Latvia and Lithuania. From *Southern Europe*, Italy and Spain have published data (although neither has yet provided a national sample), while data is currently available from half of the countries of *Western Europe* (Belgium, The Netherlands and Great Britain). Of the ten *Central European* states, Germany and Switzerland have provided related data, while no studies have yet been performed in any of the countries of the *South-Eastern European* or *Eastern European* regions. If we consider the distribution of studies in terms of the former political-based division of countries, it is apparent that of the former Eastern Bloc, data has been published only from Estonia (two studies).

Most of the studies identified involved the use of nationally-representative samples, with the exceptions being the only Italian survey (restricted to the province of Pavia; Biganzoli et al. 2004) and all of the eight Spanish studies.

The most frequently used assessment tool was the South Oaks Gambling Screen (SOGS; Lesieur and Blume 1987) and its revised version; SOGS-R (Lesieur and Blume 1993), although measures based on the diagnostic criteria of DSM have also been used (Table 1). Although a high correlation has been found between results obtained using the two methods ($r = 0.81$) (Cox et al. 2004), there are slight differences. According to a British study, problematic gambling shows lower and pathological gambling higher lifetime prevalence rates using SOGS compared to results derived from DSM-IV (Sproston et al. 2000). Another less frequently used questionnaire based on DSM-IV is the Diagnostic Interview for Gambling Severity (DIGS; Stinchfield 2003), which has been applied in only one European survey. In the final six studies, the NORC Diagnostic Screen for Gambling Problems scale (NODS; Gerstein et al. 1999) was used. It is important to see that when comparing the results we have to calculate with the possible differences resulting from the different nature of measures.

Prevalence of Gambling in Europe

All studies applied the consensual cut-off scores for defining problem and pathological gambling. In case of problem gambling specific symptoms are present; although their extent does not support fulfillment of the diagnostic criteria. In case of pathological gambling however, it is supposed that a clinical investigation would confirm the diagnosis. By analyzing the data from the 13 European countries, it can be concluded that lifetime prevalence of *problem gambling* varies between 0.18% (Spain; regional data) and 4.5% (Great Britain). Values below 1% were identified in Italy (for the Pavia region only),

whereas values above 3% were present in Estonia, Finland and Great Britain. Lifetime prevalence of *pathological gambling* varied between 0.4% (Italy; for the Pavia region only) and 3.4% (Estonia). Only The Netherlands (1%), Switzerland (1.1%), Norway (1.2%), Sweden (1.2%), Finland (1.5%) and Estonia (3.4%) showed values higher than 1% regarding pathological gambling (Fig. 1). Total lifetime prevalence of problem and pathological gambling is highest in Estonia (6.5%), Finland (5.5%) and Great Britain (5.1%), and relatively low in Italy and Spain (both 1.1%).

With respect to problem gambling, last year prevalence levels of more than 1% were observed in Norway (1.2%), Sweden (1.4%), Belgium (1.6%) and Finland (2.1%). The lowest last year prevalence rates of problem gambling were found in Germany (0.4 and 0.64%) and The Netherlands (0.6%). Similarly, last year prevalence rates of pathological gambling were again lowest in Germany (0.19 and 0.56%) and The Netherlands (0.3%), although Norway also showed low levels (0.3%). With the exception of Finland (1%) and Great Britain (0.9 and 1.2%), rates did not exceed 0.6% in any country (Fig. 2).

The studies considered here present relatively consistent results regarding the analysis of socio-demographic characteristics. Pathological gambling is considered more likely to occur among *males* who are *single*, *live in big cities*, have a *younger age* and have a *lower standard of education* and *low income*. In certain countries (e.g. The Netherlands and Sweden), belonging to an *ethnic minority* or *immigrant population* have also been identified as risk factors. In post-socialist Estonia however, the relationship between income and gambling appears to be different from that in all other countries. Here a ‘U’-shaped correspondence has been identified, meaning that both low and high income groups can be regarded as being at risk of problem gambling (Laanso 2006; Laanso and Niit 2009).

Discussion of the European Review

The systematic review presented above provides an overall picture regarding the situation of gambling in Europe and unequivocally shows the great variability of rates between

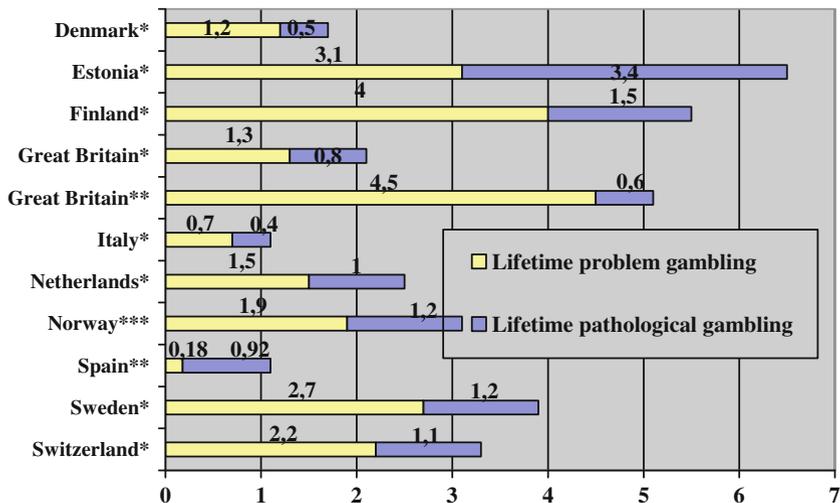


Fig. 1 Lifetime prevalence of problem and pathological gambling in countries studied (most recent data for each country). *Assessed by SOGS or SOGS-R, **assessed by DSM-III or DSM-IV, ***assessed by NODS

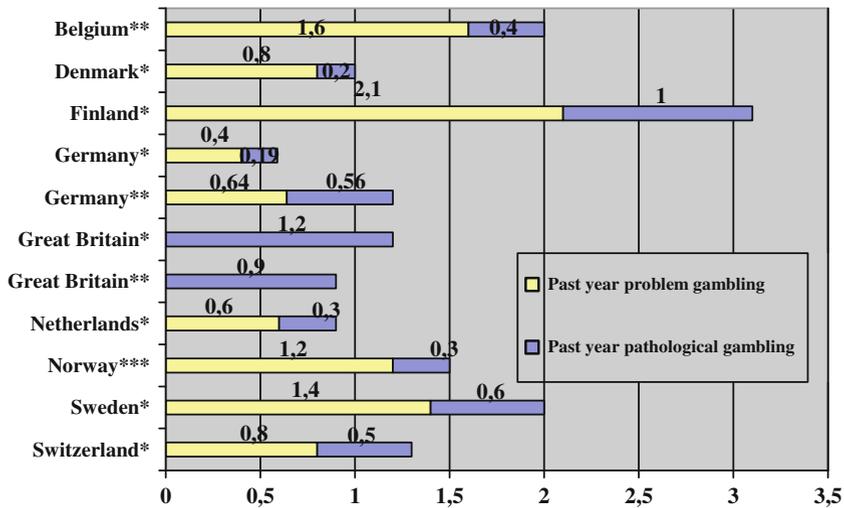


Fig. 2 Last year prevalence rates of problem and pathological gambling in countries studied (most recent data for each country). *Assessed by SOGS or SOGS-R, **assessed by DSM-III or DSM-IV, ***assessed by NODS

countries and even between different regions in the same country. At the same time it seems to be impossible to predict the extent of the problem based on any geographical or other type of factor. A good example is Scandinavia, where besides the relatively high prevalence rates in Sweden, Finland is at the highest endpoint of the range, while in Norway and especially Denmark, significantly lower rates have been observed.

In turn, there is very little data concerning former socialist countries. It is therefore difficult to answer the question as to whether the sudden availability of gambling in these countries after the political changes of the 1990s has led to unique patterns of problem and pathological gambling. The results published from Estonia, however, suggest an urgent need to examine this question. The extent of pathological gambling in particular in Estonia greatly exceeds that of most other countries in Europe, while a distinctly different relationship between an individual's income and gambling has also been identified. These results reflect the special need for the analysis and comparative study of gambling data from another post-socialist country—in this case Hungary.

Gambling in Hungary: A Nationally Representative Survey

Participants and Procedure

Problem and pathological gambling were assessed within the framework of the *National Survey on Addiction Problems in Hungary* (NSAPH) (Paksi et al. 2009). In this survey, besides the assessment of chemical addictions (tobacco smoking, alcohol and other substance use) various behavioral addictions such as pathological gambling, internet addiction, compulsive buying, eating disorders, work addiction, exercise dependence and compulsive skin picking were also assessed.

The target population of the survey was the total population of Hungary between the ages of 18 and 64 (6,703,854 persons). The sampling frame consisted of the whole resident population with a valid address, according to the register of the Central Office for Administrative and Electronic Public Services on January 1, 2006 (6,662,587 persons). Data collection was executed on a gross sample of 3,183 persons, stratified according to geographical location, degree of urbanization and age (overall 186 strata) representative of the sampling frame. Subjects were surveyed using the so-called 'mixed-method' via personal visits. Questions regarding background variables and introductory questions referring to specific disorders were asked in the course of face to face interviews, while symptom scales, including the South Oaks Gambling Screen (SOGS), were applied using self-administered paper-and-pencil questionnaires. These questionnaires were returned to the interviewer in a closed envelope to ensure confidentiality. Data were collected between March 5 and April 6, 2007, and the net sample size was 2,710 (response rate: 85.1%). The ratio of samples belonging to each strata was adjusted to the characteristics of the sampling frame by means of a weighted matrix for each stratum category. The weights applied have normal distribution (SD: 0.228; Skewness: 0.639; SE of Skewness: 0.047; Kurtosis: 2.397; SE of Kurtosis: 0.094).

Measures

Although numerous chemical and behavioral addictions were also assessed in the survey, the present review focuses exclusively on the results concerning gambling behavior. The presentation of other types of addiction falls outside the scope of this study.

Pathological gambling was measured by the South Oaks Gambling Screen (SOGS) developed by Lesieur and Blume (1987). The questionnaire was translated as well as back-translated, and inconsistencies were resolved. In the case of a few questions however, minor changes were necessary in order to fit the Hungarian circumstances. Nevertheless, these changes were did not relate to those twenty questions on the basis of which the SOGS score for problem and pathological gambling is calculated. The Cronbach's alpha of the screen showed high internal consistency ($\alpha = 0.823$).

As filter questions, all respondents were asked if they had ever gambled, if they had ever gambled on a weekly basis and if they had done so in the past year or in the past month. Questions concerned eleven different types of gambling activity (although respondents could also indicate other types of gambling if required). Those individuals who had ever gambled on a weekly basis in their lives were asked to fill in the SOGS. When evaluating the SOGS, those who scored zero on the 20-item screen were regarded as problem-free. Persons scoring one or two points were regarded as having only slight problems. Problem gambling was defined as a score of 3–4 points, while pathological gamblers were defined as scoring 5 or above on the SOGS (Meyer et al. 2009).

Socio-demographic characteristics were measured by several questions that aimed to reveal the participants' sex, age, marital status, residency, qualifications, financial background, working status and so forth. Instead of highest education, the *expected highest education* was investigated, correcting already achieved education levels with data regarding individual's current or future studies. A *Deprivation Index* was applied according to Townsend's multi-dimensional disadvantage and deprivation theory (Townsend 1979), which emphasizes the fact that the financial status of individuals and families can only be accurately measured via analysis of a complex set of living conditions. The index applied in this study is based on 16 living condition components (Spéder 2002) and

was formed by averaging the answers, indicating where components were missed due to financial reasons.

Substance use: the questionnaire also assessed the subjects' smoking habits, alcohol consumption and incidences of other substance use. In the present analysis, questions concerning actual smoking status (non-smoker, occasional smoker, regular smoker), past year's alcohol consumption, binge drinking (having six or more drinks on one occasion) and lifetime cannabis use were included.

Results

Epidemiological Data

65.3% of all respondents had gambled at least once in their lives. Two-thirds of them (64.5%) reported at least one period of weekly gambling. SOGS was answered by a total of 1,143 persons (42.2% of the whole sample).

With respect to specific gambling activities (see Table 2), the lottery and other number-draw games were the most popular; 59.5% had tried this form of gambling at least once and of these, 40% had been playing these types of games weekly during the past month. The second most popular gambling activity was scratch cards, although only around half as many had tried this game (31.4%) than had tried number-draw games and only 18.9% of these individuals had bought cards at least weekly in the past month. Relatively high sports betting rates were also reported, with 21.4% betting at least once on a sports event in their lives, although only a fifth (22.3%) of these reported weekly sports betting in the past month.

Prevalence of Problem and Pathological Gambling

57.8% of the sample population [SE = 1.86; 95% CI] had never partaken in any type of gambling activity on a weekly basis, while 31.4% [SE = 1.75; 95% CI] reported weekly gambling without any related problems (scored 0 on SOGS). 7.5% [SE = 0.99; 95% CI] reported a few problems (scored 1 or 2 on SOGS), while the rate of *problem gamblers* (PRG) was 1.9% [SE = 0.51; 95% CI]. The rate of *pathological gamblers* (PAG) was 1.4% [SE = 0.44; 95% CI] of the population.

Socio-Demographic Background of Problem and Pathological Gambling

According to our results, males, younger persons, people with lower levels of expected education, people on lower incomes and unmarried individuals are more vulnerable to gambling-related issues. However, it seems that pathological gambling is much more sensitively related to some of these background variables than problem gambling (Table 3). Both pathological and problem gambling show higher prevalence in men (PRG 3.1%; PAG 2.2%) than women (0.7 and 0.5%, respectively). While among people with an expected level of education of at least secondary school, the prevalence of problem gambling is 2% and below 1% for pathological gambling, among individuals with lower levels of education these rates are significantly higher (Table 3). Although there is no significant difference between married and unmarried persons in terms of PRG, PAG is significantly lower among married (0.7%) than unmarried individuals (2.1%). With respect

Table 2 Participation in specific gambling activities

	Never	Ever			
		Never weekly	Ever weekly but not in the past year	Weekly in the past year	Weekly in the past month
Played cards for money	88.1	11.9			
		54.4	28.4	8.2	9.1
Bet on horses, dogs or other animals	98.5	1.5			
		70.6	24.7	4.7	0
Sports betting	78.6	21.4			
		43.4	24.7	9.5	22.3
Played dice games (for money)	99.2	0.8			
		69.4	13.0	17.6	0
Went to casinos	96.4	3.6			
		56.4	24.6	8.5	10.5
Number-draw games	40.5	59.5			
		35.8	13.1	11.1	40.0
Scratch tickets	68.6	31.4			
		51.3	14.6	15.1	18.9
Played the stock and/or commodities market	98.6	1.4			
		45.8	24.3	16.4	13.6
Played slot machines or any gambling machines	91.0	9.0			
		54.2	22.9	8.4	14.5
Internet casino	98.7	1.3			
		61.3	6.8	11.7	20.1
Played billiards, bowling or any other game for money	92.5	7.5			
		44.4	18.9	17.4	19.3
Any other gambling	98.6	1.4			
		51.7	18.6	14.7	15.0

$N = 2,710$

to financial status, the relationship was unambiguous; in those households where net income per person was lower, the prevalence of pathological gambling was significantly higher. Deprivation index values show a similar association. While the average deprivation index values of those who never play weekly, who do not have any or have only few gambling problems, and problem gamblers are all below 4 (3.85, 3.54, 3.56, and 3.93, respectively), the mean index value for pathological gamblers is 5.44 ($F = 3.370$; $P = 0.009$). Size of city where the person lives, however, does not show any significant relationship with gambling.

Substance Use and Gambling

All studied substance use parameters showed a significant relationship with gambling (Table 4). While amongst non-smokers the prevalence of PRG is 1.1%, in the case of occasional smokers the rate is 2.4 and 3.5% for regular smokers. With respect to

Table 3 Socio-demographic characteristics and problem/pathological gambling

	<i>N</i>	Never gambled weekly	No problems (SOGS = 0)	Few problems (SOGS = 1–2)	Problem gambling (SOGS = 3–4)	Pathological gambling (SOGS > 5)	χ^2
<i>Sex</i>							
Male	1,334	54.1	31.6	8.9	3.1	2.2	51.351**
Female	1,376	61.5	31.3	6.0	0.7	0.5	
<i>Age</i>							
18–24 years	385	67.8	21.6	5.7	2.9	2.1	48.932**
25–34 years	640	60.0	29.8	7.0	1.1	2.0	
35–44 years	598	54.7	35.1	7.5	1.3	1.3	
45–54 years	553	56.1	33.6	6.7	2.4	1.3	
55–64 years	525	53.5	34.1	10.1	2.1	0.2	
<i>Expected highest education</i>							
Below primary education	45	80.0	11.1	2.2	2.2	4.4	51.866**
Primary school	392	63.8	24.7	6.6	1.8	3.1	
Vocational school	752	54.8	31.5	9.6	2.3	1.9	
Finished high school	905	55.6	34.1	7.7	1.7	0.9	
University	608	59.5	32.9	5.4	1.8	0.3	
<i>Marital status</i>							
Not married	1,212	61.5	28.0	6.6	1.8	2.1	25.666**
Married	1,472	54.8	34.5	8.2	1.8	0.7	
<i>Size of settlement</i>							
≤10,000 inhabitants	1,105	59.5	30.5	7.1	1.7	1.2	9.853 ^{n.s.}
>10,000 inhabitants	1,154	55.1	33.4	7.8	1.9	1.8	
Budapest	451	60.8	28.8	7.5	2.2	0.7	
<i>Net monthly income per person</i>							
<160 euro	573	61.6	26.0	7.3	2.6	2.4	20.942**
160–320 euro	849	52.9	35.1	9.0	1.9	1.2	
320 euro <	281	56.6	33.1	7.5	2.1	0.7	

** $P < 0.01$; *n.s.* non significant

pathological gambling these rates are 0.5, 1.8, and 3.2%, respectively. Similarly, while those who drank at most weekly in the past year showed only a 1.4% problem and 0.9% pathological gambling rate, these rates were 4.8 and 4.5% for people drinking more than once weekly. Similar rate patterns were also observed regarding binge drinking (Table 4). Of individuals who had tried cannabis at least once, both PRG and PAG rates were 3.7%, while for non-users these rates were only 1.8 and 1.7%, respectively.

Table 4 Substance use and problem/pathological gambling

	<i>N</i>	Never gambled weekly	No problems (SOGS = 0)	Few problems (SOGS = 1–2)	Problem gambling (SOGS = 3–4)	Pathological gambling (SOGS > 5)	χ^2
<i>Smoking</i>							
Non smoker	1,726	60.9	30.7	6.8	1.1	0.5	79.104**
Occasional smoker	167	68.3	24.6	3.0	2.4	1.8	
Regular smoker	809	49.1	34.2	10.0	3.5	3.2	
<i>Past year drinking</i>							
Weekly or less often	2,193	58.8	31.8	7.1	1.4	0.9	60.125**
More than once weekly	419	52.0	28.9	9.8	4.8	4.5	
<i>Past year bingeing</i>							
Less often than monthly	2,439	57.6	32.2	7.3	1.7	1.1	41.573**
Monthly or more often	177	57.1	21.5	10.7	5.1	6.7	
<i>Lifetime cannabis use</i>							
Never used	2,359	57.7	32.1	7.3	1.8	1.1	16.235**
Ever used	219	53.4	28.3	10.0	3.7	3.7	

** $P < 0.01$

Discussion

In the first part of our study we reviewed European surveys focusing on the prevalence of problem and pathological gambling in adult representative samples. This review highlighted the fact that relatively few studies have been carried out regarding this issue; indeed, such research has been undertaken in less than half of the 31 EU or EFTA member states (13 countries) and of these 13, 2 were only regional surveys. From the other 18 European countries not a single study is known. In line with earlier reviews (Stucki and Rihs-Middel 2007), great variation between countries was found—although there was no discernible relationship between these differences and geographical location. At the same time it seems relevant to pose the question as to whether their differing political histories—and consequently differing histories of gambling regulation—have an influence on the current state of gambling in former socialist countries compared with other European nations. In the former, the extremely limited presence of the gambling market was followed by a boom in available gambling facilities at the end of the 1980s as a result of the unique political-cultural situation existing at that time. The evolution of gambling in these countries was therefore markedly different from that of other European nations, in which constant growth was observed over several decades.

In making these comparisons, until now only those studies originating from Estonia have provided such an opportunity (Laanso and Niit 2009). These data were not

comforting, with Estonian gambling prevalence rates significantly exceeding those of all other European countries. Thanks to the present study, Hungarian data can now be added to the picture. Based on the results from this nationally-representative survey, Hungary is currently among those countries only moderately exposed to gambling, with problematic and pathological gambling prevalence levels of 1.9 and 1.4%, respectively, only a little higher than the average European rates (1.2 and 1.8%, respectively) calculated by Stucki and Rihs-Middel (2007).

However, it does appear that some kind of rebound effect has taken place here, with the elimination of the stricter administrative controls of the socialist era leading to relatively rapid growth in gambling problems. This increase could also potentially be linked to the obvious growth in Hungary of problems associated with the misuse of alcohol and other substances, which again arose after socio-economic change in the country took place (see Demetrovics 2001; Kuntsche et al., in press).

Despite this, the prevalence of gambling problems in Hungary is significantly lower than the rates observed in Estonia. In this respect Hungarian data have more in common with that observed in Western European countries, sharing a similar linear relationship between prevalence of pathological gambling, income and education levels. In contrast, the U-shaped relationship found in Estonia means that both low and high income individuals may be vulnerable to pathological gambling (Laanso 2006; Laanso and Niit 2009), which is a unique phenomenon in Europe.

In post-socialist countries such as Estonia, the sudden appearance and availability of gambling may well have become a privileged opportunity only for the rich. During the socialist era, there was no significant difference in terms of living standards of the general population, with the exception of a narrow political elite. Following the political shift however, people became responsible for their own well-being. Gaining wealth provided an opportunity to rise above the common masses, and this elevation brought with it a different lifestyle. It is therefore possible that those people who experienced a rapid increase in wealth, because of the novelty of their financial situation, wished to partake in all those activities—especially those requiring money—that became available after the political transition. Nevertheless in Hungary this tendency appears not to have prevailed.

Unfortunately, the comparison of post-socialist and other European countries remains incomplete. The present study is only the second in Europe to provide adult population data concerning the prevalence of gambling problems from a post-socialist country. Furthermore, the few studies available from other regions of Europe have used a variety of different sampling and analytical methods, and thus any comparison is difficult. Question of measurement has a special importance in this aspect, and besides comparing advantages and disadvantages of specific tools it might worth considering the consensual acceptance of a measurement tool or to create a new consensual one. In the future, the planning and execution of a trans-national comparative survey is certainly worth consideration, for it could help to address several questions impossible to answer with the data currently available.

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