

Lottery gambling and addiction: An overview of European research

Mark D. Griffiths
and
Richard T.A. Wood

Psychology Division
Nottingham Trent University

Address for written correspondence: Psychology Division, Nottingham Trent University, Burton Street, Nottingham, NG1 4BU, United Kingdom.

Address for written e-mail correspondence:

mark.griffiths@ntu.ac.uk
richard.wood@ntu.ac.uk

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This report is the first in a series of papers to concentrate on gambling in Europe. The focus of this first report is lottery gambling (including scratchcards and video lottery terminals) across Europe in relation to addiction and other social impacts. We are well aware that the picture we present in this first report is incomplete as there is very little in the established peer-reviewed research literature on the social impact of lottery gambling. It is hoped that this report will provide the starting basis for others in both the academic and gambling industry communities to "fill in the gaps".

Compiling this report has not been easy for a number of reasons. These all have a bearing on the conclusions that we make at the end. The areas of concern that that we would like to raise at the outset include:

- *The diverse quality and variety of sources used:* This report has been compiled using the small amount of academic literature, academic conference papers, annual gaming reports, market research reports, lottery website information, and personal communications. A major weakness of the information that we have gathered in this report stems from the fact that a lot of it is what we would call "grey literature" that is not published in peer-reviewed academic journals and has therefore not come under the scrutiny of peers in the field.
- *The limited range of information (in some instances) supplied:* It will become clear during the reading of this report that there are some countries where we have a wide range of information and have restricted what we could have put in (e.g. UK, Spain, Holland, Germany) and others where we have nothing (e.g. Portugal, Iceland, Greece, Norway, Turkey, Italy) or almost nothing (e.g. Albania, Poland)
- *Non-access to commercially sensitive information:* We are aware that there is a lot of commercially sensitive consumer information that exists which we do not (or did not) have access to. A number of contacts we made said they had information but could not give it to us.
- *No translation of non-English sources:* A few internal reports that we received from our European colleagues were in their native language and were not translated in time for the completion of this preliminary report. It is hoped that future reports of this nature will be able to include these non-English writings.

The report presented here is split into two parts and mainly concentrates on lottery gambling although reference (where appropriate) is also made to both instant scratchcards and video lottery terminals. The first half concentrates on the psychology of lottery gambling and outlines many of the general findings in this area. With regard to the social impact, most of the first half of the report comes from the established academic literature. The second half provides a country by country analysis (where

research evidence is available) of research on lottery gambling in those countries - much of which comes from non-peer reviewed sources.

The psychology of lottery gambling

Lotteries have traditionally been viewed as "soft" forms of gambling which are assumed to have few negative effects. However, that does not mean that this type of gambling should be passed over uncritically without looking at lotteries from a psychological perspective. This critical focus is perhaps even more relevant to the authors of this report as we come from a country who have only recently (November 1994) re-introduced a national lottery after many years without one. It is interesting to note that in the UK, the Government at that time originally argued that the National Lottery was not a real form of gambling because it was for good causes (Galston, 1995). We believe that any situation in which people intentionally risk and stake money on a future event in an attempt to gain more is gambling. Therefore buying tickets for a lottery is a bona fide form of gambling.

In Europe, lotteries are now well established and are probably perceived quite positively by most people perhaps because of their link with good causes. It has been previously argued (Griffiths, 1995a) that a lottery's association with good causes may soften people's attitudes towards gambling in general and may erode the social stigma of other gambling activities (e.g. horse race betting, casino gambling) although such an assertion needs to be tested empirically. The situation in Europe appears to be mirroring the initiation of other socially condoned but potentially addictive behaviours like drinking (alcohol) and smoking (nicotine) (Griffiths, 1995b; c; 1996).

Using the UK as a case study example, it is worth noting that the major concerns about the introduction of the National Lottery had nothing to do with the lottery in itself but have more to do with possible future legislation. The UK Government's policy on gambling dates back to the *1968 Gaming Act*, which stipulated that gambling, should not be stimulated. Since 1994, the policy of "unstimulated demand" has clearly been breached through the introduction of the National Lottery. This has been highlighted by many commentators including lawyers (Miers, 1995), gaming consultants (Kent-Lemon, 1995), the Gaming Board (Galston, 1995), psychologists (Griffiths, 1994a) and the UK Home Office (Johnston, 1995).

As European gambling laws become more relaxed and gambling becomes another product that can be more readily advertised (i.e. "stimulated") it will lead to a natural increase in uptake of those services. This in itself will lead to more people who experience gambling problems (although this may not be directly proportional) because of the proliferation of gaming establishments and relaxation of legislation.

Identifying the lottery gambler

Douglas (1995) has argued that it is important to identify the diverse requirements and behavioural patterns of different target groups for marketing purposes. For instance, Lammers (1984; cf. Douglas, 1995) claims gamblers can be divided into sub-groups of players based on just three dimensions. These are (i) *the personal and motivating interests* (i.e. whether the activity is predominantly chance or skill), (ii) *preparedness to risk* (determined by the individual's subjective estimation of winning probability and desire to win) and (iii) *gaming intensity* (i.e. the degree of investment in both time and money which leads to definitions of 'regular gambler', 'occasional gambler' etc.). This formulation like many other typologies may be theoretically useful but little empirical research has examined them.

In the US, the most widely used classification scheme is the Values and Life Styles (VALS) typology (Clotfelter & Cook, 1989). This classification subgroups gamblers into four player types (investor, plunger, believer and participant):

Investor: Well-informed gambler who assesses odds and picks game carefully

Plunger: Deeply in debt and down to their last few dollars. These people see gambling as their only hope of salvation

Believer: Has profound confidence in techniques that purport to better odds of choosing winning numbers

Participant: Enjoys non-monetary aspects of participation (e.g. scratching off panels)

This typology appears to indicate that "plungers" are those that will experience the most negative social impact, although (as far as we can ascertain), no research has knowingly been carried out on this

particular sub-group of gamblers. There are also ethical questions about whether having identified "plungers", gaming operators should deliberately market their products towards them.

Lottery gambling: Making the almost impossible seem possible

The chances of winning a "6/49" lottery (a game which is popular in many European countries) are approximately one in fourteen million. Why - given the huge odds against winning - do people persist with their dream of winning the elusive jackpot? Part of the popularity of lotteries in general is that it offers a low cost chance of winning a very large jackpot prize. Without the huge jackpot, very few people would play (Shapira & Venezia, 1992). In fact, a large number of winning opportunities and a large grand prize is generally accepted as being the optimum lottery prize format (Shapira & Venezia, 1992; Douglas, 1995).

In the UK, the National Lottery operator (Camelot) believes their own "ingredients of success" are popular products, effective marketing, convenience of play, security of system and efficiency of operation (Camelot, 1995). However, there are other important maintenance factors including (i) successful advertising and television coverage, (ii) a general ignorance of probability theory, (iii) entrapment, (iv) manufactured credibility, (v) a shared social identity, and (vi) use of heuristics (illusion of control, flexible attributions, hindsight bias, availability bias representativeness bias). These will be discussed before examining research in individual European countries.

Advertising and television coverage

The gambling industry has consistently used techniques based both on appeals to expressive needs and the manipulation of situational factors to attract new custom. An analysis of these marketing methods shows that they mainly fall into two categories (see Griffiths, 1993; 1995a; 1997a). These are situational and structural characteristics (the latter of which will be returned to later). Situational characteristics are those which get people to gamble in the first place. These characteristics are primarily features of the environment and can be considered the situational determinants of gambling. They include the location of the gambling outlet, the number of gambling outlets in a specified area and the use of advertising in stimulating people to gamble (Cornish, 1978). These variables may be very important in the initial decision to gamble and may help clarify why some forms of gambling are more attractive to particular socio-economic classes. There is little doubt that these characteristics have been critical in the success of European lotteries to date. Not only are they heavily advertised on billboards, television and in the national newspapers, but the accessibility is so widespread that they are difficult to avoid in most shops. This means that lotteries are more salient than other forms of gambling which do not have the same freedoms to advertise or have their own television show.

There is also another contributory factor that is perhaps worth mentioning here and that is most studies on other lottery play around the world have shown that the working class sector of the population is over represented and that those people from the middle classes are under represented in lottery sales (Walker, 1985). Since television viewing is greater in the working class sector, the impact of television based marketing of lottery gambling may be heightened for this group. Furthermore, a televised draw (which happens in nearly all European countries to our knowledge) highlights the simplicity of winning while at the same time hiding the huge number of losers who are watching (Walker, 1992).

It appears that most (if not all) European lottery operators actively stimulate gambling through mass television advertising and advertisements in the national press. For instance, in the UK, advertising slogans have either been designed to make people think they have a good chance of winning the jackpot rather than the actual odds ("*It could be you*") or has been designed to play upon people's charitable instinct giving an impression of altruism ("*Everyone's a winner*"). More recent slogans ("*Maybe, just maybe*") are more subtle but are still sold on the premise that somebody has got to win the big jackpot, so why shouldn't it be you. This is the major tactic - to make the person believe that the almost impossible is within their grasp.

Probability

The probability of winning lottery prizes is the basic risk dimensions, which may help determine whether a person gambles on a particular activity in the first place. These may or may not appear to be especially important to the gambler although Stewart (1996), a UK mathematician, has gone as far to say that the lotto-type games are a tribute to public innumeracy. Probabilities of winning something on the National Lottery are fairly high in comparison with other gambling activities although the chances of

winning the jackpot are very small. It is therefore likely that the ordinary 'social gambler' does not think about the actual probability of winning but relies on heuristic strategies for handling the available information. What most people will concentrate on is the amount that could be won rather than the probability of doing so. The general finding is that the greater the jackpot the more people will gamble. For instance, more lottery tickets are sold on "rollover" weeks because the potential jackpot is very large (Griffiths, 1997b).

It could further be argued that there is - or at least appears to be - a general ignorance of the way probability operates. All methods of selecting lottery numbers have an equal probability yet some of the general public do not seem to believe that the probability of the numbers 1,2,3,4,5 and 6 being picked from the 49 balls are as equally likely as any other sequence of six numbers. There are also those people who believe that future predictions can be made on the basis of past history. As Stewart (1996) points out, all lottery systems based on analysing past draws (e.g. sophisticated computer programs) are totally useless. Any patterns that are detected by the sophisticated software are spurious coincidences.

There is also the observation that people tend to overestimate positive outcomes and underestimate negative ones. For instance, if someone is told they have a one in fourteen million chance of being killed on any particular Saturday night they would hardly give it a second thought because the chances of anything untoward happening are infinitesimal. However, given the same probability of winning the lottery, people suddenly become over-optimistic. For instance, a study by MORI for the right-wing think-tank Adam Smith Institute found that 22% of people thought they would scoop the UK National Lottery jackpot in their lifetime (English, 1996).

Entrapment

Another factor that may be important in why lotteries have been so financially successful is entrapment. Entrapment refers to a commitment to a goal that has not yet been reached. The basic premise is to get the person committed to the cause or product as soon as possible. Once a commitment is made, the nature of thought changes. To the converted (in this case the lottery ticket buyer), careful and considered analysis of the situation is likely to be minimal. Lotteries have one great advantage over many other forms of gambling in that many people pick exactly the same numbers each week. In the UK, a newspaper survey reported that 67% of people choose the same numbers each week (Crosbie, 1996). Of this figure, the survey reported that 30% chose their regular numbers after an initial random selection and 37% chose the same numbers each week based on birthday dates, house numbers, favourite numbers etc. However, no details were given about demography of the participants or the sample size.

By picking the same numbers the person may become "entrapped" (Walker, 1992). Each week the player thinks they are coming closer to winning. The winning day is impossible to predict but should the lottery player decide to stop and cut their losses, they are faced with the prospect that the very next week their numbers might come up. The player is thus entrapped and the entrapment become greater as the weeks go by. According to Walker (1992), people can reach a point where holidays cannot be taken unless arrangements are made for the weekly ticket to be completed and entered. The "entrapment" process has sometimes been referred to in the psychological literature as the "sunk cost bias" (Arkes & Blumer, 1985) and is essentially another "foot-in-the-door" technique (Freedman & Fraser, 1966).

Manufacture credibility

Another tactic in selling products is to gain source credibility. In the UK, the National Lottery gained this almost immediately in that it had full Government backing (as do many other European lotteries). The Government introduced new legislation and paved the way for advertising the National Lottery on all the broadcast media. To add further credibility, the draw is broadcast on the prime-time television on *The National Lottery Live* programme by the British Broadcasting Corporation (itself an organization of international credibility). A UK newspaper item (Hellen, 1996) reported that the UK lottery operators had already succeeded in using its coverage on BBC television to present itself as a respectable British institution. According to Pratkanis (1995) source credibility can be effective for two reasons. The first is that it leads to the processing of messages in a half-mindless state - either because the person is not motivated to think, don't have the time to consider, or lack the abilities to understand the issues. Secondly, source credibility can stop questioning. After all, if the Government back it, then it must be all right !

Social identity

Social identities can be formed under the most minimal of conditions. Tajfel's classic experiments randomly assigning people into groups labelled Xs or Ws have demonstrated that total strangers can act as if those in their group were close kin and those in another group were their worst enemies (Tajfel, 1981; Turner, 1987). It could perhaps be argued that some lottery success is due in part to the creation of a shared social identity. The creation of such a shared identity depends on many factors such as rituals and symbols, jargon and beliefs, shared goals, specialised information and common enemies (Pratkanis, 1995). Identifying oneself as a "lottery player" may involve some or in some cases all these factors. There are certainly many occasions when people talk about the lottery in social situations. Perhaps the most talked about aspects of the lottery are what people would do with the money if they won the jackpot and whether they would give up work. In a study by Harpaz (1989), workers in seven different countries (USA, Netherlands, Japan, Israel, Germany, UK, Belgium) were asked "the lottery question" (i.e. whether they would give up their employment if they won or inherited a large sum of money). Nearly 9000 people were interviewed in the study and results showed that UK men were the most keen to give up work and that UK women were the only national group that were keener to continue working than men.

Heuristics

Heuristics are usually defined as "rule-of-thumb" (i.e. simple "if-then" rules or norms). There are many heuristics that may help explain why lotteries are so appealing to the general public. Although the following heuristics are not an exhaustive list, they do contain those that are probably most salient to the psychology of lottery gambling.

Illusion of control: Langer (1975) defined the illusion of control as an expectancy of success higher than the objective probability would warrant. In essence, her basic assumption was that in some chance settings (e.g. buying a lottery ticket), those conditions, which involved factors of choice, involvement, familiarity and/or competition, stimulate the illusion of control to produce skill orientations. These observations have been confirmed in both laboratory and natural setting based experiments (e.g. Langer, 1975; Langer & Roth, 1975). For instance, Langer (1975) reported that subjects would sell previously bought lottery tickets for a higher price if they had picked it themselves as opposed to having it 'assigned' by someone else

Flexible attributions: Flexible attributions are cognitive distortions in which gamblers attribute their successes as due to their own skill and failures as due to some external influence. Research by Gilovich (1983) demonstrated that gamblers transform their losses into "near wins" and spend far more time discussing their losses and discounting them while bolstering their wins. Gilovich also showed that gamblers display *hindsight bias* (i.e. they are not surprised by the outcome of a gamble and report they predicted it after the event has happened).

Representativeness Bias: The representativeness bias applies to random samples of data and is where people expect to find a representative relationship between samples drawn from the population and the population itself (Tversky & Kahneman, 1971). For instance, when subjects are asked to create a random sequence of imaginary coin tosses, they tend to produce sequences where the proportion of 'tails' in a short segment is closer to 0.5 than chance would predict (Tune, 1964). This particular mechanism may well explain the 'gambler's fallacy', i.e. the expectation that the probability of winning will increase with the length of an ongoing run of losses (Wagenaar, 1988).

Availability Bias: The availability bias occurs when a person evaluating the probability of a chance event makes the judgement in terms of the ease with which relevant instances come to mind (Kahneman & Tversky, 1973). With regards to the lotteries, winners are highly publicised. These both give the idea that wins are regular and commonplace when in fact they are rare. A vividly presented case study or example can make a lasting impression.

These heuristics and biases give some insight into why gamblers do not learn from their past losses and help to explain supposedly "irrational" behaviour. However, heuristics and biases have no predictive value. It is almost impossible to know which heuristic will be applied in a given situation and it is quite possible for the same person to use a different heuristic in the same situation on different occasions.

Gambling and addictiveness

Over the years there have been many claims that lotteries may be addictive and that this may part explain why so much money is being made. One of the major concerns relating to the increase in gambling opportunities is the potential rise in the number of problem gamblers (i.e., "gambling addicts"). Addictions always result from an interaction and interplay between many factors including the person's biological and/or genetic predisposition, their psychological constitution, their social environment and the nature of the activity itself. What has been clearly demonstrated from research evidence in other countries is that *where accessibility of gambling is increased there is an increase not only in the number of regular gamblers but also an increase in the number of problem gamblers* (Marcum and Rowen, 1974; Weinstein and Deitch, 1974; Skolnick, 1978; Dielman, 1979; Kallick-Kaufmann, 1979; Custer, 1982; Rosecrance, 1985). This obviously means that not everyone is susceptible to developing gambling addictions but it does mean that at a societal (rather than individual) level, the more gambling opportunities, the more problems.

There is no precise frequency level of a gambling game at which people become addicted since addiction will be an integrated mix of factors in which frequency is just one factor in the overall equation. Other factors and dimensions (external to the person themselves) include :

- * stake size (including issues around affordability, perceived value for money)
- * event frequency (time gap between each gamble)
- * amount of money lost in a given time period (important in chasing)
- * prize structures (number and value of prizes)
- * probability of winning (e.g. 1 in 14 million on the lottery)
- * size of jackpot (e.g. over £1 million on the lottery)
- * skill and pseudo-skill elements (actual or perceived)
- * "near miss" opportunities (i.e. optimal number of near winning situations)
- * light and colour effects (e.g. use of red lights on slot machines)
- * sound effects (e.g. use of buzzers or musical tunes to indicate winning on slot machines)
- * social or asocial nature of the game (individual and/or group activity)
- * accessibility (e.g. opening times, membership rules)
- * accessibility (e.g. number of outlets)
- * location of gambling establishment (out of town, next to workplace etc.)
- * type of gambling establishment (e.g. betting shop, amusement arcade etc.)
- * advertising (e.g. television commercials)
- * the rules of the game

Each of these differences may (and almost certainly does) have implications for the gambler's motivations and as a consequence the social impact of gambling. A lot of these factors are structural characteristics (mentioned in a previous section) which are responsible for reinforcement, may satisfy gamblers' needs and may actually facilitate excessive gambling. By identifying particular structural characteristics it may be possible to see how needs are identified, to see how information about gambling is presented (or perhaps misrepresented) and to see how thoughts about gambling are influenced and distorted. Showing the existence of such relationships has great practical importance. Not only could potentially 'dangerous' forms of gambling be identified, but effective and selective legislation could be formulated. Most people in the gambling industry make crude distinctions between 'hard' and 'soft' forms of gambling. Their current definition of 'hard' gambling outlined by the UK Home Office states:

" 'hard' gambling is a colloquialism for those forms of gambling which are considered to carry greater potential risks than others, usually because of the *high or rapid staking* associated with them" (authors' emphasis) (Home Office, 1996; p.3)

From this definition it can be concluded that 'soft' gambling refers to activities such as weekly/bi-weekly lotteries and football pools and that 'hard' gambling includes roulette, blackjack, fruit machines, horse/greyhound race betting, instant scratchcards and video lottery terminals (although there is much debate about the inclusion of some of these activities as 'hard' gambling). Some sources claim that casino type gambling comes closest to incorporating the largest number of gambling inducing characteristics (Royal Commission, 1978). Such characteristics include a high pay out ratio (i.e. jackpots) and rapid event frequency. In addition, heavy losses were viewed as a likely occurrence because this type of gambling contained structural characteristics, which allow continuous gambling. These features are also present in both scratchcard and video terminal lotteries and are expanded on

below in addition to a brief analysis of some other important psychological factors (e.g. the near miss, suspension of judgement).

Event frequency - Scratchcards have been described as "paper slot machines" (Griffiths, 1995e) and like slot machines, they have a short pay out interval (i.e. there is only a few second's interval between the initial gamble and the winning payment). Coupled with this, the rapid event frequency also means that the loss period is brief with little time given over to financial considerations and, more importantly, winnings can be regambled almost immediately. This is also the case for VLT gambling.

Three factors are inextricably linked with these characteristics. The first of these is the frequency of opportunities to gamble. Logistically, some gambling activities (e.g. bi-weekly lotteries, football pools) have small event frequencies (i.e. there is only one or two draws a week) making them 'soft' forms of gambling. However, in the case of instant scratchcards and VLTs there are few constraints on repeated gambling as limits are set only by how fast a person can scratch off the covering of the winning or losing symbols or how fast they can insert the next coin into the machine. The frequency of playing when linked with the two other factors - the result of the gamble (win or loss) and the actual time until winnings are received - exploit certain psychological principles of learning. This process, operant conditioning, conditions habits by rewarding people when they emit specific behaviour. Reinforcement occurs through presentation of a reward such as money. To produce high rates of response, those schedules which present rewards intermittently have been shown to be most effective (Skinner, 1953; Moran, 1987). Since instant scratchcards operate on such schedules it is unsurprising that high rates of response (i.e., excessive gambling) could occur. Promoters appear to acknowledge the need to pay out winnings as quickly as possible thus indicating that receiving winnings is seen by the gambling industry to act as an extrinsic reward for winners to continue gambling.

It can therefore be argued that games, which offer a fast, arousing, span of play, frequent wins and the opportunity for rapid replay are associated with problem gambling. This observations has been made in relation to slot machines by researchers all over the world (e.g. Australia, US, UK, Canada, Spain, Holland, Germany). There is no doubt that frequency of opportunities to gamble (i.e., event frequency) is a major contributory factor in the development of gambling problems (Griffiths, 1997). As argued above, slot machines have an event frequency of every few seconds whereas the football pools have an event frequency of once a week. The general rule is that the faster the event frequency, the more likely it is that the activity will cause gambling problems. Addictions are essentially about rewards and the speed of rewards. Therefore, the more potential rewards there are, the more addictive an activity is likely to be.

The most important point to make about event frequency concerns the definition of "rapid replay". Figure 1 shows gambling activities in rough order of event frequency. In general, the lower the activity is in the table, the "softer" it is, and the less problems there tends to be - at least based on the empirical evidence (although there are exceptions to the rule). Given the time, money and resources, a vast majority of gambling activities are "continuous" in that people have the potential to gamble again and again. There are only two gambling activities that could be said to be truly discontinuous (i.e., the football pools and weekly/bi-weekly lotteries).

The "near miss" - Another related aspect to operant conditioning is the "psychology of the near miss" which can act as an intermediate reinforcer. A number of psychologists (see Reid, 1986; Griffiths, 1991) have noted that near misses - that is failures that are close to being successful - appear to encourage future play inducing continued gambling, and that some commercial gambling activities (particularly slot machines and scratchcard lotteries) are formulated to ensure a higher than chance frequency of near misses. The potential danger of the near miss element of scratchcards was first documented in the 1970s and they were termed "heartstoppers" because they gave the illusion of coming close to a big prize (Moran, 1979).

At a behaviouristic level, a near miss may have the same kind of conditioning effect on behaviour as a success. For example, the slot machine's pay out line is horizontally located in the middle line of a 3 x 3 matrix. When three winning symbols are displayed, the jackpot is won and thus reinforces play. However, a near miss - such as two winning symbols and a third losing one just above or below the payline - is still strongly reinforcing at no extra expense to the machine's owner. Further to this, at an attributional level of analysis, the player is not constantly losing but constantly nearly winning (Griffiths, 1994b).

It should also be noted that the near miss can also be explained in terms of "frustration theory" or "cognitive regret" (both of which could be argued to be theoretically opposed to an operant conditioning account). According to frustration theory, failing to fulfil a goal (for example, not winning on a scratchcard) produces frustration which energises ongoing behaviour (Amsel, 1958). Subsequent wins then reinforce high rate behaviour. Other psychologists say the frustration produced by 'nearly winning' induces a form of cognitive regret (Loftus & Loftus, 1983). The elimination of regret can be achieved by playing again, and this in turn encourages future play.

Suspension of judgement - A number of gambling activities also rely to some extent on the suspension of judgement. This refers to structural characteristics, which temporarily disrupt the gambler's financial value system and may potentially stimulate further gambling (Cornish, 1978). In the case of scratchcards, the money staked (i.e. £1 in the UK) to gamble is fairly low, all of which makes the gambler think there is little to lose on each gamble. However, if gamblers were to consider money staked per session rather than per gamble (i.e. the total amount of money spent and lost during gambling), they might not gamble as much.

We hope we have demonstrated that the various structural characteristics of instant scratchcards and VLTs have at the very least had the potential to induce excessive gambling regardless of the gambler themselves. However, some structural characteristics are capable of producing psychologically rewarding experiences even in financially losing situations - particularly the psychology of the near miss - although there is no evidence to suggest that the gambling industry has used the psychological literature to "exploit" gamblers. However, the development of exploitative practices is not easy to define, identify or prevent.

We also hope that we have demonstrated that scratchcards and VLTs are a potentially "hard" form of gambling. With their integrated mix of conditioning effects, rapid event frequency, short pay out intervals and psychological rewards coupled with the fact that these activities require little or no skill, are deceptively inexpensive, are highly accessible (e.g. scratchcards are often sold in various retail outlets), it is not hard to see how these types of gambling could become repetitive habits.

Lottery gambling in Europe

The global growth of gambling and changes within the social and cultural climate has led to major changes in the political attitude to gambling world-wide. The number of countries that do not operate a lottery is extremely small and in Europe, every European nation has one (McGowan, 1994).

At the start of the decade, Hand (1992) claimed that like the US, gambling had become an epidemic in Europe. He also reported EC citizens' total annual investment in legal gambling at the time had reached the equivalent of 100 billion DM with lotteries (including Lotto and Toto) accounting for 36% investment (not including the stock market). Other money was spent on horserace betting (31%), casinos (17%), slot machines (11%) and bingo (5%).

With regards to the operation of lotteries in Europe, there are three basic models (Douglas, 1995). The first is the "state administration model" which is found in, for example, Greece, Italy, Belgium, Spain and partly in Germany. This is a system, which emphasises control and administration rather than the commercial management of the lottery operation. The second is the "public entity model" which operates in Denmark (for their 'class' lottery), Luxembourg (for the State lottery), Germany and Italy (for 'lotto' and 'toto'), and Portugal. The advantage of this structure is the development of a business culture and the speed and responsiveness of the decision making process (Douglas, 1995). The most modern development is the "private company model" whereby the state grants a licence to a private company to operate the lottery. This has happened in the UK, although other countries are beginning to go down this route (such as the Dutch lottery that has been run by a private organisation since 1992).

Douglas has comprehensively overviewed world-wide running of lotteries and has concluded that to increase participation, US state lotteries are pressed to market lottery games that feature "fast action" (e.g. scratchcards) and that offer a high degree of active involvement. For instance, in Missouri (US), they change and revamp their games every six to eight weeks. Consumption of products can also be influenced by live TV draws, introduction of other games, ease of purchase, ease of awareness (placed on shop counters to encourage impulse ticket purchases). Play value is also augmented in some instant games through employment of a continuity device enabling customer to win a further prize (e.g. words, amount, TV link-in etc.). Latex-rub panel add to the "play value" of the game and the visual appeal of the ticket is also important in helping to encourage purchase (Douglas, 1995).

The US model that Douglas highlighted has also started to infiltrate European lotteries. Instant lotteries have been available for many years in Belgium, (West) Germany and Denmark. IPM Research (1993) claimed in a study of risk effects of instant lotteries in these countries, that the involved organisations are of the opinion that instant lotteries do not lead to excessive gambling or addiction. However, it must be stressed that this is based on comparative opinions and not empirical research.

According to De Vos, Lambeck and Op het Veld (1997), research into gambling across Europe has not been particularly profitable. De Vos and his colleagues have made the only previous attempt to examine gambling and problem gambling across eight different European countries (Belgium, Denmark, France, Germany, The Netherlands, Spain, Switzerland, United Kingdom) although the annual lottery almanacs produced by the LaFleurs provide comparative statistics on lotteries across the world (see Tables 1-3 for some recent comparative lottery spend statistics). The aim of their research was to gain an insight into the extent of problem gambling across Europe by sending out questionnaires to addiction centres, universities and hospitals in addition to researchers known to work in the area of problem gambling. They sent out 920 questionnaires and received replies from 388 organizations/individuals (42.2% response rate). Of these replies, only 118 came from treatment centres with the vast majority of these coming from just four countries (Belgium, Germany, The Netherlands and Spain). Despite the relative lack of information it was evident that as far as problem gambling was concerned, the major form of problematic gambling was slot machines (see Table 4) and that lotteries produced little in the way of problems except for a small proportion of people who had problems with instant lotteries. These will be referred to (where relevant) in the country-by-country analysis below.

The information presented below is reported country by country in an alphabetical basis. Countries that have no entry indicate that we have not been able to locate any research in that country.

Albania

Until 1993, Albania (along with the UK) was the only European country not to have a lottery. Their lottery was introduced as a way of funding the 1992 Olympic team. Albanians can also buy instant win tickets from savings banks where winners may redeem their tickets for Western consumer goods (McGowan, 1994). Their largest prizes are quite modest (about twice the annual wage salary). There appear to be no statistics or research relating to lottery players in this country.

Austria

The first lottery in Austria ("Klassenlotterie") was introduced in 1860 followed by "Lotto 1-90" over 90 years later in 1951. However, a lotto type game (6/45) was not introduced until 1986 by Austrian Lotteries. This was because the Government argued that money was being lost through Austrians taking part in the lotteries of neighbouring countries. The introduction of the twice-weekly lotto game proved very popular with the projected annual sales being reached within the first six weeks (1.4 million being sold every day)! Since 1986, there has been a proliferation of games introduced including break open tickets and scratchcards in 1995 (Austrian Lotteries, 1997). The Austrian gambling industry is controlled by the Government who run casino games (roulette, card games, slot machines, VLTs) and the state lottery, and private enterprise who control slot machines, VLTs (in public gaming halls, restaurants and cafes), scratchcards and sports betting. In addition, Austria joined forces with Hungary in February 1990 to offer the world's first fully integrated multi-country lotto game (Douglas, 1995).

Despite the large uptake in gambling, there has been very little research on gambling in Austria except by Horodecki and her colleagues. In a study of 237 pathological gamblers in Austria, Horodecki (1992) reported that almost four fifths of problems (78%) were concerned with slot machines. Problems concerning lottery gambling were clumped together with pools, cards and horse racing which in total only accounted for 4% of problems. Although there is some recent Austrian data on pathological gambling, none of it is examined with relation to gambling type (Horodecki et al, 1998) although Horodecki et al (1998) note that the Austrians have one of the highest per capita spends in Europe.

Belgium

In Belgium, creation of the lottery was linked to the financial problems in its colony, Zaire (today's Congo). A law passed on the 29th of May 1934 provided the framework for this project. The first draw of the Colonial Lottery took place on October 18th 1934. The Colonial Lottery gradually carved a niche for itself in society and became a national institution, working to gain the confidence of an increasing

number of players. On June 30th 1960, Zaire was granted independence. From this point onwards, the institution was known as the "African Lottery", before becoming the National Lottery in 1962. With the game of Lotto increasing in popularity throughout Europe, in November 1975, the Belgian government finally authorised creation of a numbers lottery called "Le Lotto" (introduced 1978). In the wake of Lotto's huge success, the Lottery tested out other ideas, such as Toto 12, Toto X, Sweepstake, Presto, and Subito.

The last two games were to prove the most popular, as the public increasingly turned towards more modern formats with others being discarded (e.g. 'Duo', 'Baraka'). Over the next few years, a number of instant games were launched on the market in quick succession (e.g. 'Domino', 1992; , '21', 1993; 'Tele-Kwinto', 1994; 'Scratch', 1995; Trix, 1996). 1991 saw a dramatic overhaul of the Lottery's organisation when it was transformed into a public utility autonomous organisation with legal status under the control of the Minister of Finance. In 1992, the National Lottery started computerising the Lotto network and since 1993, 4,200 Lotto points-of-sale have been fitted with an on-line terminal. The spread of games did not stop here. The introduction of a second weekly 'Lotto' and 'Joker' draw on October 6th 1993 proved to be a success. Further to this, 'Keno' was introduced in 1995 followed by 'Bingovision' in 1997 (another televised National Lottery game).

There appears to be little available research on Belgian gambling habits in the public domain. The Belgian Department of Justice refers to 100,000 problem gamblers and 20,000 gambling addicts in the country (Van der Kreeft, 1999) although this is apparently based on transposition of US numbers. Other institutions such as the Matt Talbot Institute in Antwerp (who are carrying out a national prevalence study on gambling) refer to 45,000 Belgian problem gamblers (Van der Kreeft, 1999). Van der Kreeft (1999) has also provided some statistics on gambling among Belgian schoolchildren (see Table 5) which basically concluded that regular gambling by Belgian schoolchildren is very much a minority activity.

Finally, the European comparative study by de Vos et al (1997) reported that a small number of instant lottery gamblers in Belgium had turned up for treatment in three treatment centres (see Table 5) and that these were predominantly young males. However, it must be noted that these results were based on a very small number who sought treatment.

Czech Republic

Gambling has started to be big business in the Czech republic. SAZKA (who run most forms of gambling in the country) reported in their Annual Report (1997) that they were the third most successful company in the country. SAZKA operate a wide variety of games (e.g. betting games, number lotteries and instant lotteries) and are currently developing their scratchcard market by carrying out market research to identify a subset of "impulse buy" clientele (SAZKA, 1997). Apart from SAZKA's own market research there appears to be no research examining the social impact of gambling in the Czech Republic. However, SAZKA did provide some demographic statistics about various forms of gambling in the Czech Republic, which are reproduced in Table 6. Unfortunately, it is not known from what source these statistics originate or how the research was done. The only Czech gambling problem identified in the table is for slot machines (although it must be noted that this is the only gambling activity that SAZKA does not have any commercial interest).

Finland

Gaming is very popular in Finland and is divided between three operators each having a monopoly in their respective field. These are "Veikkaus" who run lottery games (Lotto games, TV Bingo, pools, instant lotteries etc.) and non-horse race betting, "RAY" who run the slot machine and casino industry, and "Hippos" who run betting on race courses. In 1998, their market share was 63.6%, 30.3% and 6.1% respectively (RAY, 1999)

The Lotto-type lottery was introduced in Finland in 1971 by Oy Veikkaus ab (Juha-Pekka Valkama, 1999). There were no other big chance games other than lotto in the 1970's. So it can be estimated, that the growth between 1970-75, 950 Mmk, was all Lotto's gain. Increased Lotto sales caused a large decrease in football pools sales although Lotto's impact on slot machines was small (Juha-Pekka Valkama, 1999). Despite the popularity of gambling in Finland there has been little research.

However, Murto and Niemela (1996) reported that around 1000 Finns had sought help for their gambling problems (out of a population of around 5 million) in 1994. These authors have done some initial research and briefly reported on the profile of the Finnish problem gambler based on a very small

number of cases (n = 30). Finnish problem gamblers engaged in various types of gambling (slot machines, lotto and horse betting being the most popular) but they reported that almost all problem gambling in this small number of cases was due to slot machines rather than any other type of gambling.

France

The gambling industry in France has a turnover of FFr 75 billion, divided up among the lottery (Française Des Jeux) with FFr 35 billion, the PMU (a totalizator system) with FFr 33 billion, and the casinos with FFr 6 billion (Vercher, 1997). The French lottery (FDJ) operates two traditional games (Millionaire and Banco) and two instant win games (Poker and Blackjack).

With the high-profile media presence of its products, FDJ has been behind the popularisation of gambling games. When the Loterie Nationale was re-established, in 1933, it was intended to serve charitable causes. Since then, this sector of the economy has undergone a profound transformation. Up to 1984, the process of change was very slow. The only significant event during this period being the launching of the new national lottery in 1976. With the introduction of the instant scratch-card system (Tac O Tac, Banco etc.) the lottery really took off (Vercher, 1997). The FDJ products have been popularized by their presence in the media. Success of FDJ products have been attributed to three major selling points - (i) they are readily available and easily accessible from tobacconists, newsagents and special kiosks, (ii) the stakes are low (as little as FFr 2 for a Loto card, and FFr 5 for a scratch card), and (iii) their sale is not regulated, which means that anyone, adult or child, can participate (Vercher, 1997).

The media hype surrounding the promotion of FDJ games means that they are the subject of much discussion. These games are becoming more and more conspicuous in daily life, which means that they are being integrated into social activity in general (Vercher, 1997). Players no longer feel they have to hide their faces, but can gamble openly in public, without fear of being a target for negative judgements, given that gambling has become a commonplace phenomenon, and that winning makes a person a sort of hero (Vercher, 1997).

According to Vercher (1997), another reason for the explosive rise in popularity of betting games at a time of economic crisis may be that they hold out the promise of instant upward social mobility. There are more than three million unemployed people in France, and the idea of winning the Loto represents the epitome of the "Big Break". Betting games have been promoted and institutionalised by the media, and also by the State, which sees in them a non-negligible source of income. Such games, and especially in the context of the casino, have become more and more heavily taxed, with the introduction of the Remboursement de la Dette Sociale (a levy intended to wipe out the social security deficit) in 1996, and the Contribution Sociale Généralisée (a generalised additional social security tax) in January 1997. These taxes are paid on the gross revenues of the gambling industry (Vercher, 1997).

Despite the rise in popularity of gambling in France, there is little known about French lottery players although FDJ see their games attracting young, urban female gamblers who are overwhelmed by the complexity of horse racing. There appears to be no statistics or research relating to lottery players in this country.

Germany

Germany (along with Spain) are said to have the highest per capita spending on gambling (Zagorin, 1991) and has expanded rapidly since the middle of the 1970s (Meyer, 1992). Early research by Lisch (1983) reported that almost one-third of adult West Germans (32%) were lotto 6/49 players. Other research by Meyer and Bachmann (1993) also shows that lotto is the favourite type of gambling in Germany. By the end of the 1980s there were 22,000 outlets to gamble in Germany (Meyer, 1992). A good overview of lotteries in Germany is provided by Albers and Hubl (1997). Albers and Hubl provide a comprehensive description to the German gambling market (see Table 7 for an overview of gambling market share, 1973-1995). In 1995, the total gross market volume (i.e. gross stakes on all gambling) reached approx. 41, 500 million DM (\$28,000 million US), The total net market volume (i.e. money finally lost) was 13,000 million DM. In Germany, state-operated games dominate the gambling market, the exceptions being some casinos, horseracing and gaming machines. New lottery licenses are only granted to companies in the public domain. There are many different types of lottery in Germany including the German lotto pool (lotto 6/49, sports pool betting [soccer toto], scratchcard lotteries, wheel of fortune), draw lotteries (passive computer-numbered ticket drawings) and television lotteries (charity lotteries on both German public TV channels). The German lotto pool is a lottery consortium

formed by all 16 German states. This was instigated to increase the population base of players and to rule out state rivalry. It has two draws a week and tickets are sold in 23,000 outlets with proceeds earmarked for the benefit of welfare services.

In Albers & Hubl (1997) survey of 891 lottery players, it was predicted that gambling participation were due to structural differences in games. Only one motivational variable for gambling participation was isolated, that being the maximum prize. It has been pointed out in other studies that grand prizes – especially lottery jackpots – are a very important reason for the participation in gambling (Clotfelter & Cook, 1989; Shapiro & Venezia, 1992). This was confirmed by Albers and Hubl. Lottery players were slightly more likely to be male, and to be less educated. Blue-collar workers were no more likely to be lottery players than white-collar workers and in fact civil servants had higher participation rates. Being unemployed only increased participation among slot machine players. Other factors such as age and home ownership showed no differences. Albers and Hubl also reported that unemployment and lower formal education increased gambling participation – a finding that has been confirmed in the US (Clotfelter & Cook, 1989). Gambling was also correlated with economic development – especially disposable income of households.

There have been no prevalence studies of problem gambling in Germany although there are other data, which suggest the extent of the problem. Estimates vary from 20,000 up to one million people (Buhringer & Konstany, 1992; Bellaire & Caspari, 1992). There appears to be little evidence that German lotteries are problematic as most research on problem gambling has identified slot machines as the main problem source (e.g. Buhringer & Konstany, 1992; Turk, 1998; Meyer, 1992).

Finally, the European comparative study by de Vos et al (1997) reported that a small number of instant lottery gamblers in (West) Germany had turned up for treatment in five treatment centres (see Table 4) and that these were predominantly middle-aged males. However, it must be noted that these results were based on a very small number who sought treatment.

Holland

Up until 1964, the Dutch lottery had fairly stable annual sales of more than 35 million guilders (\$1 = 1.9 guilders). However, in 1986, the lottery went from four to twelve draws a year and in 1987 it raised 638 million guilders, of which 70% goes back in prize money and 23% of total sales goes back to the Dutch treasury (Hermkens & Kok, 1990). Football betting (Toto) started in the 1950s although many new soccer games have been added in the last few years (e.g. Toto Select, Toto Tip). In 1974 a Lotto type game was introduced where people had to pick 6 numbers from 41 (now 6 from 45). More recently, a daily game (Lucky 10) was added and in 1994 instant lottery scratchcards were introduced. Every new introduction has led to a broadening of the gambling market (van den Dool, 1999).

The first comprehensive survey of gambling in Holland was carried out by Hermkens and Kok (1990) who surveyed 2,200 people aged between 18 and 65+ years by telephone. They reported that the most popular forms of gambling in Holland were lotteries. For instance, 73% had played a small lottery for a worthy cause, 52% had played the state lottery, 29% had played the big national lottery and 37% had played the TV lottery (see Tables 8 and 9 for further details). They reported that lotteries caused few problems and that the most problematic form of gambling was slot machines.

Another more recent survey of gambling in Holland was carried out by Kingsma (1993) for the Ministry of Health and Culture. Kingsma surveyed 7840 Dutch people and reported that 47% participated in one or more varieties of lotteries. This was much higher than other forms of gambling such as slot machines (7%), casinos (4%) and bingo (1%). He also reported that 87% of lottery players were regular lottery gamblers (i.e., they gambled once a month or more on at least one lottery). It was reported that lottery players constituted the widest demography of people (when compared with other types of gamblers) although the upper classes and well educated were under-represented. Although the biggest risk on lotteries was reported as being overspending (particularly with the "postcode lottery" established in 1989), Kingsma reported that problematic gambling was mainly confined to slot machine gambling. Of the estimated 30,000 "gambling addicts" in Holland, Kingsma claimed that 73% of these were slot machine players. Only 8% of problem gamblers played the lottery and these were usually in conjunction with other forms of gambling (i.e. these players also played slot machines and/or gambled in casinos). His conclusion was that lottery and lotto games (including scratchcards) were an almost "risk-free" type of gambling.

The prevalence of problem gambling in Holland has not been assessed although Hermkens and Kok (1990) suggest there are between 10,000 and 20,000 pathological gamblers. Meulenbeek and Gorter (1996) investigated the characteristics of gamblers seeking help at their treatment clinic. Of the 52 gamblers seeking treatment, 23% played the lottery but this was not problematic. The vast majority of those with problems reported slot machines as being the most problematic.

Finally, the European comparative study by de Vos et al (1997) reported that a small number of instant lottery gamblers in Holland had turned up for treatment in two treatment centres (see Table 4) and that these were predominantly middle-aged males. However, it must be noted that these results were based on a very small number who sought treatment.

Ireland

The Irish lottery was established fairly recently in 1986 and consists of both a lotto game and an instant game. 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 (Ir) 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 (Ir) a week (see Table 10 for a comprehensive overview of the results of these two surveys). Overall, the reports did indicate that weekly spend was higher amongst those who could least afford it but the reports said little about other problems associated with excessive gambling.

Poland

Polish Law on games of chance and mutual bets does not set age restrictions for gambling except in gaming rooms and betting shops where those under 18 years of age are refused entry. Poland's main lottery was introduced in 1936 (Wydanski, 1999) although Poland is now saturated with lottery games both nationally and privately run. The most popular game is the 'Totolotek' which is run by the state. There are over 550 terminals in Warsaw and Katowice with 1.5 million playing regularly (McGowan, 1994). An instant win game ('Rekord') was introduced there in 1992 but there are no statistics available on usage and appear to be no statistics or research relating to lottery players in this country.

Russia

McGowan (1994) states there are two things that Russia needs – hope and money. As a result, lotteries have emerged fairly recently as a way to accommodate such needs. The main lottery (Million Lotto) with its weekly draw on Thursdays was introduced as a way of raising funds for athletics although there are other lotteries with equally beneficial causes (e.g. victims of Chernobyl). As well as the weekly draw there are also scratchcards and a daily sports lotto. Although there are reports of Russians spending 20% of their wages on lottery gambling (McGowan, 1994) there are no research statistics available. All forms of gambling are particularly attractive to the third of the population who live below the poverty line and gambling to these people remains a ray of hope that can improve one's life.

Spain

Spain has long been avid gamblers, and lotteries have been available to them for centuries. Spain legalized gambling in 1977 and in a short time it has become big business. Spain (along with Germany) is said to have the highest per capita spending on gambling with around 15% of income being spent (Zagorin, 1991; Garvia, 1998). Spain has many different types of lottery including the primitive lottery, bonloto, the lottery for the blind (ONCE coupons), the national lottery (ONLAE) and the annual 'El Gordo' (The Fat One) which has the world's largest payout. The ONLAE draw takes place three times a week and the ONCE draw takes place twice a week. (To demonstrate the wide range of lottery products that Spaniards have available to them, see Figure 2).

The prevalence rate of pathological gambling in Galicia was reported by Becona (1991) as being 1.7% among a sample of 1615 people. Of these pathological gamblers, the predominant daily form of gambling was slot machines (50%) although the lottery for the blind (ONCE) was gambled on every day by 25% of the pathological gamblers (n=7). Legarda, Babio and Abreu (1992) also reported a prevalence rate of

1.7% pathological gambling in Seville using the SOGS (n=598). Pathological gamblers were more likely to have problems with slot machines although the authors did report that 80% of the pathological gamblers played the lottery more than once a week.

Research by Gonzalez, Mercade, Sanroma & Cordero (1992) on a small number of pathological gamblers indicated only two (out of 45) gamblers in treatment (4.4%) had problems with lottery gambling. Slot machines caused the highest percentage of problems (67%). Further research at the same hospital in Barcelona (Aymami-Sanroma, Gonzalez-Ibanez and Jimenez-Murcia, 1996) reported some data from a prospective longitudinal study of 172 pathological gamblers (91% male) in treatment. Their results indicated that problem gamblers experienced most problems with slot machines (72%) with lotteries accounting for less than 2% of all problems. This confirms the findings of other previous Spanish studies (e.g. Gonzalez-Ibanez et al, 1992; 1995; Becona, 1996). They also asked all problem gamblers about secondary gambling and lottery gambling was the second favourite type of gambling in 21% of the cases. However, it must be noted that the secondary gambling was not necessarily perceived to be problematic.

Finally, the European comparative study by de Vos et al (1997) reported that a small number of instant lottery gamblers in Spain had turned up for treatment in eight treatment centres (see Table 4) and that these were predominantly middle-aged males. However, it must be noted that these results were based on a very small number who sought treatment.

Sweden

Sweden has had some kind of lottery since 1896, however, a Lotto game was not introduced until 1980. After its introduction, Lotto soon became the most popular gambling activity in Sweden although this popularity has decreased lately (Wessberg, 1999). Thanks to marketing efforts the pools did not suffer from the introduction of Lotto but the success of Bingolotto has affected Lotto.

Early studies by Bergh and Kuhlhorn (1994) on small numbers of Swedish pathological gamblers (n=101) reported that problem areas were horse races, roulette and bingo. This was at a time when gambling had increased threefold from 6 billion SEK in 1983 to 18 billion SEK ten years later (Bergh & Kuhlhorn, 1994).

More recently, Ronnberg, Abbott and Volberg (1998) have been carrying out a large prevalence study in Sweden and successfully interviewed 7139 people (72% response rate) aged 15 to 74 years old. They reported that 73% of their sample had gambled on lotteries (keno etc.), 67% had gambled on Lotto, Joker etc. and that 61% had gambled on other lottery games. The sample was also asked which of these games had been played within the last year and 57% had gambled on lotteries (keno etc.), 45% on Lotto, Joker etc. and 40% on other lotteries. Ronnberg et al reported that lotteries, bingo and pools were the activities that most Swedes gambled upon. They reported a prevalence rate for problem gambling as 2.2%. Higher rates were reported for males (3.4%) and for young 15- to 17-year olds (6.3%). When broken down by gambling type, Ronnberg et al (1998) produced the results in Table 11. These results show there is some evidence that pathological gamblers can have problems with a wide variety of types of gambling but that certain games are more problematic (e.g. slot machines, craps). The results showed less problematic gambling on lottery type gambling than any other form.

Switzerland

The Société de la Loterie de la Suisse Romande was founded on July 26, 1937 to run lotteries strictly in accordance with federal and cantonal laws and regulations. The cantons of Vaud, Valais, Fribourg, Neuchâtel, Geneva and Jura are members of this organisation and redistribute all the benefits of the lottery "Loterie Romande" for good causes. The money is used especially to finance social, cultural as well as research projects (J. -M. Coowar, 1999). However, there are no statistics available on usage and appear to be no statistics or research relating to lottery players in this country.

United Kingdom

To date there has been no prevalence study of adult gambling in the UK and as such there is a dearth of data on problem gambling. However, since October 1997, GamCare (The National Association for Gambling Care, Educational Resources and Training) has run a national gambling helpline. Results from the first 12 months of operation (November 1997 to October 1998) show the helpline received a total of 1729 calls (Griffiths, Scarfe & Bellringer, 1999). Of these, 51% were from problem gamblers themselves

(90% male; 10% female) and a further 26% of calls were from relatives of problem gamblers. Slot machine gambling appeared to be most problematic for the callers as a whole and for particular sub-groups such as adolescents. When broken down by gambling type, a clear trend started to emerge based on the 1644 calls directly related to a gambling problem. The most problematic forms were fruit machine gambling (45%, 742 calls), off-course betting (37%, 606 calls), and casino gambling (11%, 180 calls). Lesser problems arose from scratchcards (2%), the lottery (1%) and other forms of gambling like spread betting, bingo and cards (4%).

The UK National Lottery: The UK National Lottery was established on November 14th 1994 and is based on a forty-nine-ball lotto system (6/49). Originally, there was one weekly (Saturday) draw but on 5th February 1997 a second weekly (Wednesday) draw was also introduced. Since this time the National Lottery has been incredibly popular, and in the first year £3.3 billion pounds worth of lottery tickets were sold (Camelot 1995, Kellner 1995). There are 30 million players in the UK with lottery tickets being sold at over 24,000 outlets. The National Lottery has created 15 million new gamblers (Henley Centre, 1997) with 65% of the adult population playing regularly. The National Lottery is the UK's most popular form of gambling and it has been estimated that 90% of adults have played at least once (Camelot 1995). There are roughly equal numbers of males and female lottery players and the lottery has expanded the customer base of the overall market (considerably assisted by television and media coverage) by appealing across the age, class and gender spectrum. It is true to say that the National Lottery has penetrated all segments of the community (Henley Centre, 1997)

The UK National lottery is also unique, in that it is the only European national lottery that is run by a private company (Camelot). The lottery itself is monitored and regulated by the Office of the National Lottery (Oflot) a non-ministerial government appointed organisation, responsible for the licensing of the National Lottery. This license was awarded for a seven-year period, and is due to be reviewed in the year 2001.

Not long after its introduction, the UK National Lottery ranked first world-wide in terms of overall total sales (Creigh-Tyte & Farrell, 1997; see Tables 2-3) although this is not surprising given the monopoly of the domestic market and the fact that it was a novel experience to most British people. However, there are a number of other European countries with higher per capita spends (see Table 1). The impact of deregulation and the introduction of the lottery appears to have forced the rest of the industry to actively pursue ways of innovating and upgrading their products and services, e.g. '49s' in betting shops (Henley Centre, 1997). The high profile nature of the lottery and the deregulation of the industry has increased general awareness of gambling addiction especially among the young (which will be examined below). In essence, the National Lottery gave a new impetus to gambling in the UK. This is confirmed by the fact that since 1993, consumer expenditure on gambling has increased by 65% in the UK. The only industry to be hit during this time was the football pools.

(It perhaps should also be mentioned that by the end of 1997, there were also 2,443 society lotteries registered with the UK Gaming Board with £115 million tickets sold. Eighteen local authorities were also registered with sales of £730,000. Local authority lotteries have declined since the advent of the National Lottery whereas society lotteries have recorded a 30% increase in turnover between 1995 and 1996 – Topham & Donoughue, 1998)

Attitudes toward the UK National Lottery: Camelot's own research (1995), on an unspecified number of people, claimed that 89% of people approved of the National Lottery and that 71% thought it was good for the country. In another survey of 2029 people for the UK consumer magazine *Which?*, 60% played the lottery for fun but were not worried by the small chances of winning. A large majority (80%) thought there should be smaller prizes and 66% thought the jackpot was too large (cf. Creigh-Tyte & Farrell, 1998).

Attitudinal research by the Henley Centre (1997) has revealed that consumers are driven by profit not charity. In essence, the National Lottery has encouraged a movement from stigma to acceptability. In fact, 58% agree that the lottery has made gambling more acceptable (Henley Centre, 1996). According to one piece of market research, the primary motivations for playing lotteries are to win money/big prize (55%), the enjoyment of playing (15%) and giving to a good cause (5%). A slight majority (52%) report that playing the lottery is different from other forms of gambling (Henley Centre, 1996). Market research also suggests that the UK public is indifferent to good cause themes although some may rationalize a lottery purchase with this idea (Douglas, 1995).

Money spent on UK lottery draws and associated factors: The average amount spent on lottery draws per week in 1997 was £86 million. The most ever spent in a week was in January 1996 when there was a rollover jackpot of £42 million, with £128 million being spent on the draw. However, sales steadily declined until the Wednesday draw was introduced, which boosted sales by 20-30%. This increased overall lottery sales to their peak level, of approximately £5.5 billion per year.

The Family Expenditure Survey (Office of National Statistics, 1997) indicated that sales of lottery products are equivalent to £4.25 for every household in the UK, and £6.45 for each participating household. A study by Reid, Woodford, Roberts, Golding & Towell (1999) found that manual workers spent more than twice as much on the lottery than non-manual workers. The study also demonstrated a link between higher spending on the lottery and poor social functioning, lower frequency of social support, and higher alcohol and cigarette consumption. Higher spending was associated with older age and manual social class, as noted in previous studies (Oflot, 1997a). There was no association found between higher spending and annual earnings, use of drugs, general mental health, gender or ethnicity.

Money spent on UK scratchcards and associated factors The average amount spent on lottery scratchcards per week was falling. Estimates of scratchcard purchasing in 1995 suggested £40-44 million per week was being spent (Fitzherbert, 1995). More recent figure found a weekly expenditure of £14 million pounds (Office of National Statistics, 1998). This is £2.5 million less than sales in the previous year (Oflot, 1997b). Surveys have indicated average weekly spending on scratchcards as between £1 and £5. However surveys of individual spending patterns on scratchcards are known to consistently underestimate spending by approximately one third (Oflot, 1997b). Therefore excessive expenditure on scratchcards has not yet been fully investigated, and this remains an area of concern, particularly in light of the addictive potential of scratchcards.

National Lottery gambling by young people in the UK: The legal age limit for playing the UK National Lottery is sixteen, but there is a growing body of evidence that many younger children are also taking part (Garner 1995; MacDonald 1995; Moran 1995; Fisher & Balding 1996, Fisher 1998; Wood & Griffiths, 1998). Officially anyone under 16 years of age is not allowed to play, but reports are suggesting that that this is not the reality. Moran (1995) reported that 61% of a sample of 187 school children had successfully purchased lottery tickets. A survey by the children's charity 'Children's Express' commissioned by *The Independent* newspaper found that children aged between 12-15 were able to buy lottery tickets on two thirds of occasions (Garner, 1995), and a similar study by *The Sunday Mirror* newspaper reported that three quarters of the children in their survey aged (11-15) had brought lottery tickets. Many more young people whilst not actually purchasing the tickets themselves are given lottery tickets or scratchcards by their parents (Fisher, 1998; Wood & Griffiths, 1998). Fisher and Balding (1996) conducted a study of young people and gambling for Oflot and found that 15% of a sub-sample of 12- to 15-year olds (n=3724) had spent their own money on the National Lottery during the preceding week, 9% of these tickets were bought by adults and 6% were bought illegally. However, this survey may be drastically underestimating the numbers of adolescents who are taking part in the lottery by excluding those young people who have had lottery tickets bought for them and/or paid for by family or friends.

Frequency of play was found to be influenced by gender, age and weekly income, with boys playing more frequently than girls, older adolescents playing more frequently than younger adolescents, and those receiving £5 a week or more playing more than those who received less weekly income. In a more recent study (Fisher, 1998) again commissioned by Oflot, it was noted that the lottery was reported as the most popular form of adolescent gambling with 40% of the sample of 12-to 15-year olds (n=9774) playing. The study also found that over half (56%) of the attempts by underage people to buy National Lottery products were successful.

Wood and Griffiths (1998) in a similar study involving 11- to 15-year olds (n = 1195) found that 48% of their sample regularly took part in the National Lottery. Most of these adolescents (64%) played the lottery occasionally, although 16% played most weeks and 14% played every week. There were no gender differences in frequency of play. A large minority of the participants bought their own lottery tickets illegally (17%). There were again no gender differences. The study also found a strong correlation between parental and child participation on the National Lottery. In fact, of the participants who took part in these activities most had their lottery tickets bought for them by their parents (71%).

It is also worth mentioning that in the study by Griffiths, Scarfe and Bellringer (1998) mentioned at the start of this section, of the 1266 callers who revealed their age when they called the national helpline, a total of 156 calls (12%) were made by people under the age of 18 years of age (see Table 12). The vast

majority (128 calls; 82%) concerned problems concerning slot machines. Other problem areas for adolescents included off-course betting (17 calls; 11%), casino gambling (6 calls) and scratchcard gambling (5 calls; 3%). It is worth noting that most of this gambling is legal as there are no legal age restrictions on AWP (amusement with prizes) slot machines.

It appears that television may play a critical role in influencing lottery play. For instance, the UK Independent Television Commission (1995) showed that *The National Lottery Live* television programme was the second most popular programme watched by children aged 10- to 15-years of age with 38% watching. More recently this figure appears to have drastically escalated, as Fisher (1998) found that the *National Lottery Live* television programmes were watched by 84% of their sample of 12- to 15-year olds on Saturdays, and 62% on Wednesdays. The explanations given for these large numbers of young viewers are the early schedule of the programmes (before the 9pm "watershed") and the combination of celebrities and popstars who contribute to the overall 'glitz and glamour' of the shows. Further to this, the advertising for both the National Lottery and scratchcards is fast persuading viewers that gambling is normal. Children are thus being saturated further with the principles of gambling and are growing up to believe gambling is socially acceptable. Again, this is an important area for further empirical work.

Attitudes and beliefs of young UK lottery gamblers: The study by Wood and Griffiths (1998), is the only research carried out in the UK, to have examined young people's attitudes and beliefs concerning the lottery. For example, the majority of the adolescents in this study reported that they thought gambling was a bad idea (72%). There was a sizeable gender difference with significantly more male participants reporting that they were in favour of gambling compared to females (males 40%; females 18%). However when asked about their views on the acceptability of the lottery there were no such gender differences. The majority of the participants thought that the lottery was a good idea (76%). Of the participants who said that gambling was a bad idea almost half (49%) suggested that the lottery was a good idea. Again there were no significant gender differences. This would seem to indicate that these young people might not actually perceive the UK National Lottery as a bona fide form of gambling.

With regards to their perceptions of winning, a sizeable minority of the participants reported that they thought they would win a lot of money on the lottery (21%) (with a lot of money being defined as over £1 million by 67% of the participants). There were significant differences between male and female perceptions of winning a lot of money on the lottery. More males than females reported that they thought they would win a lot of money on the lottery (males 28%; females 14%).

Adolescent problem lottery gambling in the UK: The study by Wood and Griffiths (1998) is also the only study in the UK, to attempt any measurement of adolescent problem gambling on the UK lottery. Levels of problem gambling were examined using the DSM-IV-J addiction scale adapted from the American Psychiatric Association diagnostic criteria (Fisher 1992). On the basis of answering "yes" to four or more questions on the scale, it was found that 6% of players may have developed patterns of problem gambling on the lottery (26 male, 11 female) (see Table 13). Aside from these possible problem gamblers, many more participants answered "yes" to some of the questions on the scale. In particular the question "*Do you often find yourself thinking about the lottery and or planning the next time you will play?*" produced a high number of "yes" responses (32%), by significantly more males than females (males 36%, females 25%). The results showed a similar pattern for the question "*After spending money on the National Lottery do you play again to try and win your money back (more than half the time)?*" With 35 % of the respondents answering "yes". Again this appeared to be significantly more of a problem for males (males 40%, females 35%). Furthermore a large minority of the participants answered that they were in fact worried about how much they spent on the lottery (17%).

National Lottery scratchcard gambling in the UK: Scratchcards constitute a structurally different form of gambling to the lottery. National Lottery Scratchcards (*Instants*) can be purchased in the same outlets as the National Lottery and the money also goes to 'good causes', but here the similarity ends. The main difference between scratchcard and lottery gambling is that scratchcards have a very high event frequency as was mentioned earlier in the report, i.e., the time between buying the scratchcard and obtaining the result is very brief, this action can then be repeated immediately by buying more scratchcards. In this respect it has been suggested that scratchcards may constitute a 'harder' form of gambling than the National Lottery (Griffiths 1995c, 1996a). Whilst there is a lack of empirical evidence concerning problem scratchcard gambling in the adult population (due to a lack of research in this area) it appears that the National Lottery and scratchcard gambling may both be potentially problematic activities for large numbers of people but in different ways. The National Lottery may appeal to a sense of fantasy preoccupying some people's thoughts, with planning schemes or the fantasy of winning.

Scratchcards may involve a more vicarious feedback or 'hit', involving operant conditioning and physiological arousal. Whether or not these characteristics will appeal to different types of people is not yet clear.

National Lottery scratchcard (Instants) gambling by young people in the UK: Fisher and Balding (1996) conducted a study for Oflot of 12 to 15 year old boys and girls (n=7200) from eight southern regions in the UK. The study indicated that 37% of the participants had played during the last year. Regular scratchcard players (defined as playing National Lottery Scratchcards at least 2-3 times a week) were found to be significantly more likely to be male, have a weekly income of at least £5 and to come from an ethnic minority group. Three percent (n=189) of the adolescents reported playing lottery scratchcards at least twice a week. The study also found that regular scratchcard players were more likely to smoke cigarettes, drink alcohol, take illegal drugs and play fruit machines regularly compared to the other adolescents in the study. Finally it should be noted that the study is only concerned with National Lottery Scratchcards and does not enquire as to other types of scratchcard use. Therefore the extent to which the promotion and advertising of National Lottery Scratchcards is affecting other types of scratchcard purchasing is not addressed. This is particularly important in relation to the wide variety of scratchcard style products which have been developed since the National Lottery Scratchcards were introduced (e.g. scratchcards in newspapers and on sweet wrappers).

In a more recent study by Fisher (1998) (again commissioned by Oflot) it was noted that slot machines were found to be the most popular form of adolescent gambling played by 75% of the sample (n=9774), followed by National Lottery Scratchcards (47%) and then the National Lottery (40%). This time the study also asked if participants bought other non-National Lottery Scratchcards and 5% acknowledged this was so. The study found that over half (56%) of the attempts by underage people to buy National Lottery products were successful. Using the diagnostic screening tool DSM-IV-J-R to identify problem gamblers the study indicated a 1% level of possible problem gambling for National Lottery Scratchcards.

Problem gamblers were identified as predominantly male and to have a weekly income of £5 or more per week. It was found that the parents of the problem gamblers were more than twice as likely to have gambled on each of nine different forms of commercial gambling activities compared to the parents of non-problem gamblers. The problem gamblers were more than three times as likely as the other adolescents to report that they thought their parents gambled too much. The problem gamblers' parents appeared less likely to disapprove of adolescent gambling than the other parents. The most common companions overall for lottery and scratchcard gambling were the adolescents' parents, although problem gamblers were more likely to play on their own or with friends.

The study by Wood and Griffiths (1998) showed that 30% of adolescents played scratchcards. Most of the adolescents who played scratchcards played once a month (44%), although 27% played a few times a month, 12% once a week, 13% a few times a week and 4% played everyday. There were no gender differences in frequency of play. A large minority of the participants bought their own scratchcards illegally (26%). There were again no gender differences. The average amount adolescents spent on scratchcards per week was £1.40. Wood and Griffiths (1998) again using the DSM-IV-J addiction scale (Fisher 1992) identified a 6% level of adolescent problem scratchcard gambling (18 male, 7 female) (see Table 13). Aside from these possible problem gamblers, many more participants answered "yes" to some of the questions on the scale (see table 1). In particular the question "*Do you often find yourself thinking about scratchcards at odd times of the day/and or planning the next time you will play*"? produced a high number of "yes" responses in relation to scratchcards (16%). The results showed a similar pattern for the question "*After spending money on scratchcards do you play again to try and win your money back (more than half the time)*?" There was a high level of "Yes" responses for scratchcards (29%). Furthermore a large minority of the participants answered that they were in fact worried about how much they spent on scratchcards (17%).

Attitudes and beliefs of young UK lottery scratchcard gamblers: Again the Wood and Griffiths (1998) study is the only UK research conducted so far which examines adolescent's attitudes to scratchcards. The majority of the participants thought that scratchcards were a good idea (57%). Of the participants who said that gambling was a bad idea 33% suggested that scratchcards were a good idea.

A sizeable minority of the participants reported that they thought they would win a lot of money on scratchcards (25%) (with a lot of money being defined as over £1 million by 67% of the participants). There were significant differences between male and female perceptions of winning a lot of money on scratchcards. More males than females reported that they thought they would win a lot of money on

scratchcards, (males 32%, females 19%). More females than males suggested that they would not win a lot of money on scratchcards (females 30%, males 16%).

Links with parental gambling and scratchcard use: There was a strong correlation between parental and child participation on the National Lottery and scratchcards. Furthermore of the participants who took part in these activities most had their lottery tickets/scratchcards bought for them by their parents (National Lottery 71%; scratchcards 57%).

Many more young people whilst not actually purchasing the tickets themselves are given lottery tickets or scratchcards by their parents (Fisher 1998; Wood & Griffiths 1998). This is an area of particular concern in light of several studies which have indicated a strong link between adult problem gamblers and later problem gambling amongst their children (Ide-Smith & Lea 1988; Fisher, 1993; Winters, Stinchfield & Fulkerson 1993; Griffiths 1995d). Studies have also shown that the earlier a person begins to gamble the more likely they are to become problem gamblers as adults (Ide-Smith & Lea 1988; Fisher, 1993; Winters, Stinchfield & Fulkerson 1993; Griffiths 1995d). Studies in the UK, Canada and USA have revealed a general pathological gambling rate of five to six percent amongst the under 18 years of age group. This figure is twice that identified in the adult population (Fisher 1993; Griffiths 1995d). It appears therefore that young people may be more vulnerable to the negative effects of gambling than adults. Furthermore pathological gambling in adolescents has been linked with a variety of delinquent activities such as alcohol, substance abuse, theft and truancy (Ladouceur & Mireault, 1988; Fisher 1993; Griffiths 1995d).

Lottery gambling and drug use by UK adolescents: Griffiths and Sutherland (1998) have examined National Lottery and instant scratchcard gambling amongst adolescents and their relationship with other behaviours such as drinking alcohol, tobacco smoking and illicit drug taking. Other factors (e.g. perceived school performance, illegal behaviour) were also examined. In their study, 4516 adolescents (aged 11- to 16-years) completed a questionnaire examining the relationship between underage National Lottery gambling, underage scratchcard gambling, cigarette smoking, drinking alcohol and drug use. Other aspects of adolescent life were examined including illegal behaviour and academic performance. It was found that these behaviours were closely linked. Adolescent gamblers were significantly more likely to drink alcohol, smoke tobacco and take drugs compared to non-gamblers. They were also significantly more likely to have been suspended from school and to believe they were failing at school.

Although the links between these cluster of behaviours may come from either their illegality and/or social meaning (e.g. acts of rebellion against authority figures, rites of passage, source of social identity) (see Griffiths, [1996b] for an overview of commonalities between different addictive behaviours), there may also be some links with the way that products, not just lottery gambling but also cigarettes and drinks like 'alcopops', are advertised and permeate youth culture. Although there are quite strict regulations on the advertising of cigarettes on television, there may be a co-incidental link between the advertising of alcoholic drinks and lottery gambling on television.

(The former) Yugoslavia

The National Lottery was founded in 1833 and today it is the largest lottery organisation in Federal Republic of Yugoslavia (and the biggest benefactor in the country). Games of chance have a long tradition in Yugoslavia and their lottery organisation is one of the oldest in the world. The National Lottery continues the tradition of the Great Serbian Lottery founded on December 5, 1833.

Lotto was successfully introduced in 1962 for the first time, it was televised and was very popular. A different lotto game (Lotto 5/36), started on 16 June 1997 and has one draw a week (televised at 8pm every Thursday night on the second channel of the Yugoslav National Television). Other products have also been introduced by the organisation including the "express lottery" (1971), Tombola (1984) and Hipo-Toto (1985) as well as slot machines and casinos. In 1987 the instant lottery was successfully introduced and is still very popular. As the result National Lottery expanded its market and since 1990 the company has organised the largest number of games of chance in Europe. The company invests a lot in advertising and promotion, and their commercials can be seen and heard every day on television and radio stations.

The most popular game of the National Lottery is TV Bingo. During 1997, players won numerous prizes including 596,191 prizes in money amounting US\$ 19,500,000, as well as 47,183 prizes in consumer goods

(cars, scooters, bedroom furniture, TV sets, music sets, video cameras, washing machines, microwave ovens, vacuum cleaners, electric stoves, refrigerators). Despite the rise of gambling, according to Ljubomir Colakov (1999) the Development Department Manager of the Yugoslavian National lottery there appear to be no statistics or research relating to lottery players in this country.

Video lottery terminals

Before concluding this section, it needs to be said that there has been little research into the effects of VLTs in Europe and research elsewhere in the world has been very sparse. In comparison to the research into slot machines worldwide, there has been comparatively little research into VLTs.

Gfellner (1994) surveyed 507 VLT players from Brandon (Manitoba, Canada) and reported that 9.3% (n = 47) of them were problem gamblers. Of these, the majority were male (64%) and between 18 and 45 years of age (90%). Wynne also reported data concerning 53 problem VLT players and reported that they were slightly more likely to be male (55%) and aged between 18 and 44 years (84%). Research in South Dakota, USA (Morgan, Kofoed, Buchkoski & Carr, 1996) and Canada (AADAC) have shown that VLTs are addictive. In their study only seven of the 58 pathological gamblers in treatment were not involved with VLTs.

More recently, the Alberta Alcohol and Drug Abuse Commission (1997) carried out an in-depth study of 84 problem VLT users. The report's main findings were that their mean average age was 38 years, that 64% were male, 38% were single / 32% married, 48% were employed (full-time), and 31% were unemployed. Their mean average playing time had been 30 months and 24% were more than \$15000 in debt. It was also reported that 97% of them were pathological gamblers as measured by the South Oaks Gambling Screen (SOGS)

The motivations for VLT playing were listed as fun/entertainment, excitement, winning money, escape (from problems) and challenge. Their preference for VLTs over other gambling forms were reported as being due to speed of play, excitement, ease of access, availability and convenience of play. They preferred to play in lounges and hotels (because of the easy accessibility) and three-quarters said that near wins and small wins maintain interest and excitement.

The AADAC also reported that VLT problem gamblers come from all segments of the population, had gambled throughout life but had no problem until the introduction of VLTs, and believed VLTs provide the greatest risk of problem gambling. VLT problem onset was quicker than drugs/alcohol and players thought they could influence play (despite there being no skill element). They were also more likely to play alone (to limit interaction). With such little research into VLTs it is hard to make any firm conclusions although the patterns of problem play appear to be very similar to that of slot machines in general. With this in mind, it should perhaps be considered that the conclusions we make about slot machines in the next section may also be applicable to VLTs.

Conclusions

In examining the research Europe-wide, a number of clear trends have clearly been established. There is little doubt that of all the types of gambling that are available there is one gambling activity (i.e. slot machines) which cause significantly more problematic gambling than any other activity. This was reported by researchers all over Europe including Holland, United Kingdom, Spain, Sweden, Finland, Czech Republic and Germany. It appears that the Governments of most European countries view slot machines as a 'soft' form of gambling when in fact they should be seen as a 'hard' form of gambling. We would like to make it clear that this does not mean slot machines are bad. We will explain what we mean by way of an analogy. For example, we personally believe that whisky is a 'hard' form of alcohol and that it is potentially addictive to a small minority of people. This statement does not imply that we think whisky is bad. It is merely an opinion based on research evidence. In the same way, we personally believe that slot machines are a 'hard' form of gambling and that they are potentially addictive to a small minority based on the research evidence. Clearly the way forward here is stricter regulation.

With regards to weekly or bi-weekly lotteries there is little evidence Europe-wide that they are addictive. This is primarily because of their low event frequency (i.e. there are a number of days gap between knowing the result of each gamble). However, there are a number of caveats. Preliminary research in the UK on young adolescents does suggest that lotteries may be problematic for a small minority of these individuals. This needs to be monitored as it may be the case that there is a developmental effect occurring in these situations and that adolescents may be more "at risk" than adults even when playing on lotto-type games. Secondly, problem gamblers in some countries (e.g. Spain, Sweden) do report lottery gambling as a secondary form of gambling although there is little evidence that it is this particular form of gambling which is directly problematic.

Scratchcards and VLTs appear to be a different proposition to discontinuous lottery games and appear to have the potential to promote repetitive habit patterns. Although the evidence is somewhat sparse, there does appear to be evidence in a number of countries (e.g. UK, Spain, Belgium, Holland, Germany) that scratchcards are a problem to a small minority of people in that they have either turned up at treatment clinics in those countries or have rang a national gambling helpline.

From the introductory overview of the psychological literature, there is plenty of evidence to suggest that a gambler's ignorance about probability or situational cues may encourage gamblers to think they have some influence over mainly chance-determined activities. However, it is difficult to use such information directly in regulation of these activities. Another complicating factor is that educating the public about gambling may have the reverse of the desired effect and actually increase awareness. It may be that regulation is best achieved not through changing the structural characteristics but through such practices as prohibition of advertising, decreasing the number of outlets for gambling available and geographically locating gambling establishments away from sites where more vulnerable members of the population are found (e.g. schools, colleges). In the *Which?* survey (1997; cf. Creigh-Tyte & Farrell, 1998) respondents said that to combat underage sales, the price should be raised rather than the age limit. This is also a possible option.

It is clear from our report that more research on this topic is needed in almost every European country. However, more is needed than basic sociological work on demographics and spending levels on lotteries. Research is needed on both the social and psychological impact of lotteries (in all their forms) with more work concentrating on the minority of heavier spending players. The current trend of producing statistics on the "average" player does little in assessing the potential problems at the extreme end of the gambling spectrum. There is also the need to monitor the European uptake in other forms of gambling and to further assess the impact of continuing European deregulation policy. This needs to be done longitudinally to get a proper sense of the emerging impact. Problematic gambling levels need to be assessed using bona fide addiction criteria - not through indirect measures such as gambling expenditure. There is also a clear need for prevalence surveys to be carried out in nearly all countries as only two (Spain and Sweden) have attempted to systematically to do this.

Gambling on instant scratchcards and VLTs are of particular worry because they are not an extension of lotto-type games but are totally separate forms of gambling which gives all purchasers the chance to gamble continuously (rather than once or twice a week) for a large prize. We would argue that scratchcards and VLTs are in fact 'hard gambling' in that they (i) produce psychologically rewarding experiences in losing situations by simulating "near winning" experiences, (ii) have short payout intervals of a few seconds (i.e rapid event frequency), (iii) are deceptively inexpensive, (iv) require no skill, (v) provide opportunity for repeated and continuous gambling and (vi) are highly accessible. Further to this, by means of advertising and television coverage, children and adolescents are being introduced to the principles of gambling (as witnessed in countries like the UK). Problematic gambling is far more likely with scratchcards and VLTs because people can engage in instant and continuous gambling (rather than wait once or twice a week for the result on other lottery games).

Finally, we would like to add that this report says as much about *the research that needs to be done* as it does about that which has been carried out already. It is clear (as we pointed out in our very opening remarks) that the material we have collated here is of variable quality and diversity and that the conclusions we have made are based on an incomplete picture. We hope at the very least our report will (a) bring forth other existing work that we have been unable to locate and (b) foster new research projects in this area.

References

- Albers, N. & Hubl, L. (1997). Gambling market and individual patterns of gambling in Germany. *Journal of Gambling Studies*, 13, 125-144.
- Alberta Alcohol and Drug Abuse Commission (1997). *Unplugged From The Machine: VLT problem gambling Treatment Clients*. Alberta : AADAC.
- Amsel, A. (1958). The role of frustrative non-reward in non-continuous reward situations. *Psychological Bulletin*, 55, 102-119.
- Arkes, H.R. & Blumer, C. (1985). The psychology of sunk cost. *Organizational Behavior and Human Decision Processes*, 35, 124-140.
- Austrian Lotteries (1997). *Annual Report 1997 (Short Version)*. Vienna : Author.
- Aymami-Sanroma, M.N., Gonzalez-Ibanez, A. & Jimenez-Murcia, S. (1996, June). Epidemiology of pathological gambling in a professional treatment programme in Barcelona, Spain. Paper presented at the First International Symposium on pathological Gambling, University of Bellvitge, Barcelona.
- Becona, E. (1993). The prevalence of pathological gambling in Galicia (Spain). *Journal of Gambling Studies*, 9, 353-369.
- Becona, E. (1996). Prevalence surveys of pathological gambling in Europe : The cases of Germany, Holland and Spain. *Journal of Gambling Studies*, 12, 179-192.
- Belgian National Lottery Website (1999). www.loterie-nationale.be
- Bellaire, W. & Caspari, D. (1992). Diagnosis and therapy of male gamblers in a University Psychiatric Hospital. *Journal of Gambling Studies*, 8, 21-38.
- Bergh, C. & Kuhlhorn, E. (1994). Social, psychological and physical consequences of pathological gambling in Sweden. *Journal of Gambling Studies*, 10, 275-285.
- Buhringer, G. & Konstanty, R. (1992). Intensive gamblers on German-style slot machines. *Journal of Gambling Studies*, 8, 21-38.
- Camelot (1995). The National Lottery 1st Anniversary Press Pack.
- Clotfelter, C.T. & Cook, P. (1989). *Selling Hope: State Lotteries in America*. London-Cambridge, Mass. : Harvard University Press.
- Colakov, L. (1999). Personal communication, 11/2/99 (e-mail)
- Coowar, J.M. (1999). Personal communication, 11/2/99 (e-mail)
- Cornish, D.B. (1978). *Gambling: A review of the literature and its implications for policy and research*. London : HMSO.
- Creigh-Tyte, S. (1997). Building a National Lottery: reviewing British Experience. *Journal of Gambling Studies*, 13, 321-341.
- Creigh-Tyte, S. & Farrell, L. (1998). *The Economics of the National Lottery*. University of Durham, Department of Economics Working Paper.
- Crosbie, P. (1996). So what's your chances of winning £40m? *The Daily Express*, January 6, pp. 27-29.
- De Vos, T., Lambeck, S. & Op et Veld, G. (1997). *Gambling in Europe: A comparative study among eight European countries*. Brabant : Dineke Grundel.
- Douglas, A. (1995). *British Charitable Gambling 1956-1994: Towards a National Lottery*. London : Athlone Press.

- English, S. (1996). Skye's no limit in lottery giveaway. *The Times*, October 4, p.3.
- Fisher, S.E. (1992). Measuring pathological gambling in children: The case of fruit machines in the U.K. *Journal of Gambling Studies*, 8, 263-285.
- Fisher, S.E. (1993). Gambling and pathological gambling in adolescents. *Journal of Gambling Studies*, 9, 277-288.
- Fisher, S.E. & Balding, J. (1996). Under sixteen's find the Lottery a good gamble. *Education and Health*, 13, 5.
- Fisher, S.E., and Balding, J. (1998). *Gambling and problem gambling among young people in England and Wales. A report commissioned by the Office of the National Lottery*. London: Oflot.
- Fitzherbert, L. (1995). *Winners and Losers : The impact of the National Lottery*. London: Joseph Rowntree Foundation.
- Freedman, J. & Fraser, S. (1966). Compliance without pressure: The foot-in-the-door technique. *Journal of Personality and Social Psychology*, 4, 195-202.
- Galston, B. (1995). Relaxing gaming controls: The Gaming Board's view. *Society for the Study of Gambling Newsletter*, 26, 7-11.
- Garner, C. (1995). It could be YOUR child. *The Sunday Mirror*, June 6, pp. 4-5.
- Garvia, R. (1998). The picturesque Spanish gambling market: Some comparative data and a hypothesis. Paper presented at the Third European Conference on Gambling and Policy Issues, Munich, Germany.
- Gfellner, B. (1994). *A Profile of VLT Users in Manitoba*. Unpublished report.
- Gilovich, T. (1983). Biased evaluations and persistence in gambling. *Journal of Personality and Social Psychology*, 44, 1100-1126.
- Griffiths, M.D. (1991). The psychobiology of the near miss in fruit machine gambling. *Journal of Psychology*, 125, 347-357.
- Griffiths, M.D. (1993). Fruit machine gambling: The importance of structural characteristics. *Journal of Gambling Studies*, 9, 133-152.
- Griffiths, M.D. (1994a). Lottery hopes (letter). *The Times*, October 5, p. 19.
- Griffiths, M.D. (1994b). The role of cognitive bias and skill in fruit machine gambling. *British Journal of Psychology*, 85, 351-369.
- Griffiths, M.D. (1995a). Winners and losers in the lottery boom (letter). *The Times*, July 11, p.17.
- Griffiths, M.D. (1995b). Cold comfort for cuddly causes (letter). *The Guardian*, October 24, p.14.
- Griffiths, M.D. (1995c). Addicts (letter). *The Sunday Times (News Review)*, November 12, p.9.
- Griffiths, M.D. (1995d). *Adolescent Gambling*. London : Routledge.
- Griffiths, M.D. (1995e). 'Instant' gambling (letter). *The Times*, April 19, p. 17.
- Griffiths, M.D. (1996a). Addiction to gaming (letter). *The Times*, March 3, p.19.
- Griffiths, M.D. (1996b). Behavioural addictions: An issue for everybody. *Employee Counselling Today : The Journal of Workplace Learning*, 8(3), 19-25.
- Griffiths, M.D. (1997a). The National Lottery and instant scratchcards: A psychological perspective. *The Psychologist : The Bulletin of the British Psychological Society*, 10, 26-29.

- Griffiths, M.D. (1997b). Selling hope : The psychology of the National Lottery. *Psychology review*, 4(1), 26-30.
- Griffiths, M.D. & Sutherland, I. (1998). Adolescent gambling and drug use. *Journal of Community and Applied Social Psychology*, 8, 423-427.
- Griffiths, M.D., Scarfe, A. & Bellringer, P. (1999). The UK National Telephone Gambling Helpline - Results on the first year of operation. Paper under review.
- Gonzalez-Ibanez, A., Mercade, P.V., Sanroma, N.A. & Cordero, C.P. (1992). Clinical and pathological evaluation of pathological gambling in Barcelona, Spain. *Journal of Gambling Studies*, 8, 299-310.
- Gonzalez-Ibanez, A., Saldana, C., Jiminez-Murcia, S. & Vallejo, J. (1995, June). Psychological and behavioural features of pathological machine gamblers. Paper presented at the First European Conference on Gambling and Policy issues, University of Cambridge, Cambridge.
- Hand, I. (1992). Editor's introduction to special issues on gambling in Germany. *Journal of Gambling Studies*, 8, 3-9.
- Harpaz, I. (1989). Non-financial employment commitment: A cross-national comparison. *Journal of Occupational Psychology*, 62, 147-150.
- Hellen, N. (1996). ITV bids £10m to screen lottery. *The Sunday Times*, October 27, p.5
- Henley Centre (1996). *Lottery Fallout II*. London: Henley Centre.
- Henley Centre (1997). *UK gambling case study*. London: Henley Centre.
- Hermkens, P. & Kok, I. (1990). Gambling in the Netherlands: Developments, participation, and compulsive gambling. *Journal of Gambling Studies*, 6, 223-240.
- Home Office (1996). *Casinos and Bingo Clubs: A Consultation Paper*. London: Author.
- Horodecki, I. (1992). The treatment model of the guidance centre for gamblers and their relatives in Vienna/Austria. *Journal of gambling Studies*, 8, 115-129.
- Horodecki, I., Gumhalter, P. Frohlich, R. & Gumhalter-Scherf, M. (1998). *Counselling and Therapy center for Addicted Gamblers and Their Families (1997 Annual Report)*. Vienna: Author.
- Ide-Smith, S. & Lea, S.E.G. (1988). Gambling in young adolescents. *Journal of Gambling Behaviour*, 4, 110-118.
- Independent Television Commission (1995). Child's-eye view. *Spectrum*, 17, 24.
- IPM Research (1993). Study of the way in which the instant lottery has been introduced and possible problems. The Hague, March 1993 (cited in Kingsma, 1993).
- Jiminez-Murcia, S. (1999). Personal communication. 15/3/99 (e-mail)
- Johnston, J. (1995). Home Office policy on gambling. *Society for the Study of Gambling Newsletter*, 26, 3-6.
- Kahneman, D. & Tversky, A. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5, 207-233.
- Kallick-Kaufmann, M. (1979). The micro and macro dimensions of gambling in the United States. *Journal of Social Issues*, 35, 7-26.
- Kellner, P. (1995). Game for anything (NOP Poll). *The Sunday Times Magazine*, November 12, p.23.

- Kent-Lemon, N. (1995). Deregulation of the casino industry. *Society for the Study of Gambling Newsletter*, 26, 12-20.
- Kingsma, S. (1993). *Risk analysis of gambling: Study of the nature and extent of gambling addiction in the Netherlands*. Survey commissioned by the Ministry of Health and Culture Trade Group Leisure Affairs, KU-Brabant, Tilburg. Tilburg : Katholieke Universiteit Brabant.
- Ladouceur, R., and Mireault, M. (1988). Gambling behaviors among high school students in the Quebec area. *Journal of Gambling Behavior*, 4, 3-12.
- LaFleur, T. & LaFleur, B. (1998). *The 1998 LaFleur's Lottery Almanac (6th Edition)*. Maryland: TLF Publications.
- Langer, E.J. (1975). The illusion of control. *Journal of Personality and Social Psychology*, 32, 311-328.
- Langer, E.J. & Roth, J. (1975). The effect of sequence outcome in a chance task on the illusion of control. *Journal of Personality and Social Psychology*, 32, 951-955.
- Legarda, J.J., Babio, R. & Abreu, J.M. (1992). Prevalence estimates of pathological gambling in Seville (Spain). *British Journal of Addiction*, 87, 767-770.
- Loftus, G.A. and Loftus, E.F. (1983). *Mind at play : The psychology of video games*. New York: Basic Books.
- MacDonald, M. (1995). Shopkeepers break ban on child gamblers. *The Independent*, May 25, p. 3.
- Marcum, J. and Rowen, H. (1974). How many games in town? - The pros and cons of legalized gambling. *Public Interest*, 36, 26-52.
- McGowan, R. (1994). *State Lotteries and Legalized Gambling*. New York : Praeger.
- Meulenbeek, P. & Gorter, J. (1996, September). Research into characteristics of gamblers asking for help. Paper presented at the Second European Conference on Gambling and Policy Issues, Amsterdam, The Netherlands.
- Meyer, G. (1992). The gambling market in the Federal Republic of Germany and the helpseeking of pathological gamblers. *Journal of Gambling Studies*, 8, 11-20.
- Meyer, G. & Bachmann, M. (1993). *Glucksspiel : Wenn der traum vom gluck zum alptraum wird*. Berlin : Springer-Verlag
- Miers, D. (1995). Regulating Great Britain's National Lottery. *Society for the Study of Gambling Newsletter*, 25, 13-31.
- Moran, E. (1979). An assessment of the Report of The Royal Commission on Gambling 1976-1978. *British Journal of Addiction*, 74, 3-9.
- Moran, E. (1987). *Gambling among schoolchildren : The impact of the fruit machine*. London: National Council on Gambling.
- Moran, E. (1995). Majority of secondary school children buy tickets. *British Medical Journal*, 311, 1225-1226.
- Morgan, T., Kofoed, L., Buchkoski, J. & Carr, R.D. (1996). Video lottery gambling: Effects on pathological gamblers seeking treatment in South Dakota. *Journal of Gambling Studies*, 12, 451-460.
- Murto, L. & Niemela, J. (1996, September). A profile of the Finnish compulsive gambler. Paper presented at the Second European Conference on Gambling and Policy Issues, Amsterdam, The Netherlands.
- Office for National Statistics (ONS), (Winter 1998). *The impact of the lottery. Trends Quarterly*. London : The Stationary Office.

- Office of the National Lottery (1997b). *Director General of the National Lottery Annual report 1996-97*. London: The Stationary Office.
- Pratkanis, A.R. (1995). How to sell pseudoscience. *The Skeptical Enquirer*, 19 (4), 19-25.
- RAY (Raha-Automaattiyhdistys) (1999). RAY and Finnish gaming market. Internal report.
- Reid, R.L. (1986). The psychology of the near miss. *Journal of Gambling Behavior*, 2, 32-39.
- Reid, S., Woodford, S.J., Roberts, R., Golding, J.F. & Towell, A.D. (1999). Health-related correlates of gambling on the British National Lottery. *Psychological Reports*, 84, 247-254.
- Ronnberg, S., Abbott, M. & Volberg, R. (1998). Swedish pathological gambling prevalence study proposals. Report No. 1 of the National Institute of Public Health Series on Gambling.
- Rosecrance, J. (1985). Compulsive gambling and the medicalization of deviance. *Social Problems*, 32, 275-284.
- Royal Commission on Gambling (1978). *Final Report Cmnd 7200*. London: HMSO.
- SAZKA (1997). *1997 Annual Report*. Prague: Author
- Shapira, Z. & Venezia, I. (1992). Size and frequency of prizes as determinants of the demand for lotteries. *Organizational Behavior and Human Decision Processes*, 52, 307-318.
- Skinner, B.F. (1953). *Science and Human Behaviour*. New York: Free Press. ____
- Skolnick, J. (1978). *House of Cards*. Boston : Little Brown.
- Stewart, I. (1996). It probably won't be you. *The Times Higher Educational Supplement*, April 12, p.14.
- Tajfel, H. (1981). *Human Groups and Social Categories*. Cambridge University Press: Cambridge.
- Topham, N. & Donoughue, S. (1998). The UK Gambling Industry 1996. Report for the Gaming Industry Forum. Centre for the Study of Gambling and Commercial Gaming, University of Salford
- Tune, G. (1964). Response preferences : A review of some relevant literature. *Psychological Bulletin*, 61, 286-302.
- Turk, D. (1998). Risk factors of pathological gambling. Paper presented at the Third European Conference on Gambling and Policy Issues, Munich, Germany.
- Turner, J.C. (1987). *Rediscovering the Social Group*. Blackwell: New York.
- Tversky, A. & Kahneman, D. (1971). Belief in the law of small numbers. *Psychological Bulletin*, 76, 105-110.
- Valkama, J-P. (1999). Personal communication. 15/3/99 (e-mail).
- van den Dool, R. (1999). Personal communication. 19/3/99 (e-mail).
- Van der Kreeft, P. (1999). Personal communication. 30/3/99 (e-mail)
- Vercher, E. (1997, June). Casinos in France: A study in the promotion of image. Paper presented at the Tenth International Conference on Gambling and Risk taking, Montreal, Canada.
- Walker, M.B. (1985). Explanations for gambling. In G.T. Caldwell, M.G. Dickerson, B. Haig and L. Sylvan (Eds.), *Faces of Gambling* . Croom Helm: Sydney.
- Walker, M. B. (1992). *The Psychology of Gambling*. Pergamon: Oxford.
- Wagenaar, W. (1988). *Paradoxes of Gambling Behaviour*. London: Erlbaum.

Wessberg, G. (1999). Personal communication. 4/2/99 (e-mail).

Winters, K.C., Stinchfield, R. & Fulkerson, J. (1993). Patterns and characteristics of adolescent gambling, *Journal of Gambling Studies*, 9, 371-386.

Wood, R.T.A. & Griffiths, M.D. (1998). The acquisition, development and maintenance of lottery and scratchcard gambling in adolescence. *Journal of Adolescence*, 21, 265-273.

Wydanski, A. (1999). Personal communication. 10/2/99 (e-mail).

Wynne, H. (1994). *A Description of Problem gambling in Alberta: A Secondary Analysis of the Alberta Study*. Unpublished Report.

Yugoslavian National Lottery Website (1999). www.ylottery.co.yu

Zagorin, A. (1991). Gaming: All bets are off. How entrenched national monopolies are weakening Europe's chances of emerging with a single market for gambling in 1992. *Time*, 40-41.

**Table 1: Lottery and scratchcard sales in selected European countries
(adapted from Creigh-Tyte, 1997)**

Country	Population (million)	Lottery sales (US billion \$)	Sales per capita (US \$)
Austria	8.0	1.3	164.3
Norway	4.3	0.07	161.1
Denmark	5.2	0.05	154.3
Ireland	3.5	0.48	138.3
UK	58.7	7.3	125.5
Belgium	10.1	1.1	112.4
Sweden	8.8	1.0	109.5
France	58.1	6.3	107.9
Germany	81.3	7.3	68.2
Italy	58.3	3.4	58.8
Spain	39.4	2.1	53.4
Netherlands	15.5	0.2	13.3

(N.B. There are problems with international comparisons because you cannot compare like with like).

**Table 2: Top five European lottery games in terms of total sales in 1996
(adapted from Creigh-Tyte & Farrell, 1998)**

Rank	Lottery	Country	Population (millions)	Total sales (US\$ mill)	Total per capita
1	UK National Lottery	UK	58	7,955.7	\$140
2	ONLAE	Spain	39	6,997.8	\$180
3	La Francaise des jeux	France	58	6,460.8	\$111
4	Lottomatica	Italy	58	4,089.3	\$71
5	ONCE	Spain	39	2,963.4	\$75

**Table 3: Top ten European lottery games in terms of total sales in 1997
(adapted from La Fleur and La Fleur, 1998)**

Rank	Lottery	Country	Population (millions)	Total sales (US\$ mill)
1	UK National Lottery	UK	58	9,021.1
2	ONLAE	Spain	39	6,534.9
3	Loterie Nazionali	Italy	58	6,459.3
4	La Francaise des Jeux	France	58	5,748.0
5	ONCE	Spain	39	2,500.7
6	Osterreich.Lotterien	Austria	8	1,178.2
7	SKL	Germany	82	1,088.6
8	Loterie Nationale	Belgium	10	1,071.8
9	Oy Veikkaus	Finland	5	1,034.1
10	Norsk Tipping	Norway	4.4	919.0

Table 4: Number of gamblers in treatment by gambling type across four countries in 1994

(Adapted from De Vos, Lambeck & Op et Veld, 1997)

	Belgium	Germany	Netherlands	Spain
<i>Slot machines</i>				
No. in treatment	171	1210	940	576
Males (%)	100	96	96	89
Mean age	27	29	29	36
No. of treatment centres	10	39	6	15
Total slot machine players in treatment = 2897 (83%)				
<i>Casino games</i>				
No. in treatment	31	94	83	15
Males (%)	92	87	98	90
Mean age	38	40	33	40
No. of treatment centres	3	28	2	6
Total casino game players in treatment = 223 (6.4%)				
<i>Horse racing</i>				
No. in treatment	21	14	10	2
Males (%)	100	98	98	100
Mean age	30	35	25	39
No. of treatment centres	3	7	1	1
Total horse race gamblers in treatment = 47 (1.3%)				
<i>Instant lotteries</i>				
No. in treatment	12	12	4	30
Males (%)	67	83	98	87
Mean age	23	48	30	43
No. of treatment centres	3	5	2	8
Total instant lottery players in treatment = 58 (1.7%)				
<i>Bingo</i>				
No. in treatment	-	1	2	256
Males (%)	-	100	100	56
Mean age	-	34	25	41
No. of treatment centres	-	1	1	12
Total number of bingo players in treatment = 259 (7.4%)				
Total number of gamblers in treatment = 3484				

Table 5: Prevalence of types of gambling in Belgian schoolchildren in 1994 and 1998

(supplied by Van der Kreeft, 1999)

	Never	Seldom	Monthly	Weekly	Daily
Slot machines	68	25	3	3	1
Betting	59	34	5	1	1
Cards	81	13	3	2	1
Lottery	69	21	4	6	0

Original source: School questionnaire (P. Lambrecht; 1994; Brussels)

	Never	Seldom	Monthly	Weekly	Daily
Slot machines	69	23	5	4	0
Betting	49	41	7	3	1
Cards	72	21	3	3	1
Lottery	56	31	7	7	0

Original source: School questionnaire (VAD; 1998; Flanders)

Table 6: A breakdown of demographic variables of gambling among people of the Czech Republic

Table 7: A breakdown of gambling market volume and market share in (West) Germany 1973-1995
(from Albers & Hubl, 1997)

Table 8: A breakdown of frequency of gambling participation in Dutch households

(from Hermkens & Kok, 1990)

Table 9: A breakdown of frequency of gambling participation in Dutch households by age

(from Hermkens & Kok, 1990)

Table 10: profile of regular Irish National Lottery participants in 1989 and 1991

(from Douglas, 1995)

Table 11: Percentage of current prevalence of problem and pathological gamblers in different games in Sweden

(from Ronnberg, Abbott & Volberg, 1998)

<i>Kind of game</i>	<i>Problem gamblers</i>	<i>Pathological gamblers</i>	<i>Total</i>
Instant lotteries	2.1	0.8	2.9
Nationwide lotteries	1.9	0.9	2.8
Lotteries for welfare	1.8	0.6	2.4
Bingo	2.4	3.0	5.4
BingoLotto	1.8	0.7	2.5
Football pools	3.0	1.3	4.3
Horseraces	2.9	1.3	4.2
Casino games	6.9	2.9	9.8
Slot machines	4.2	2.0	6.2
Card games for money	7.0	3.3	10.3
Craps	8.2	9.1	17.3
Amusement machines	6.8	3.3	10.1

Table 12: Age breakdown of gamblers who called the UK GamCare helpline and who volunteered their age (n = 1266)

(from Griffiths, Scarfe & Bellringer, 1999)

Age:	under 18	18-25	26-39	40-60	60+
Gambling type					
<i>Fruit machines</i>	128	275	211	76	12
<i>Off-course betting</i>	17	92	303	140	19
<i>Casinos</i>	6	18	70	40	16
<i>Scratchcards</i>	5	7	14	5	2

Table 13: Percentages of UK adolescent lottery and scratchcard players showing diagnostic criteria of DSM-IV-J

DSM-IV-J Criterion	% male lottery	% female lottery	% total lottery	% male s/card	% female s/card	% total s/card
Think about lottery/scratchcards at odd times/planning next time	36	25	32*	18	13	16
Need to spend more on lottery/scratchcards	13	5	10**	15	7	12
Restless/tense when trying to cut down/stop playing	10	6	9*	7	6	7
Play to escape problems	10	5	9*	10	2	6**
Chase losses	40	26	35***	30	28	29
Lie to family and friends	6	3	5	7	4	6
Spend school dinner/bus money on lottery/scratchcards	7	5	6	8	5	6
Stole money from family for lottery/scratchcards	4	2	3	4	4	4
Stole from outside family/shoplifted	4	1	3*	8	2	5*
Argue with family/friends over lottery/scratchcards playing	3	4	4	7	4	6
Missed school (5 times or more) to play lottery/scratchcards	3	2	3	6	2	4
Sought help for money worry because of lottery/scratchcards	2	1	2	3	2	2

* = 0.05 ** = 0.005 *** = 0.0005 significance level of gender differences

Figure 1

Gambling activities in rough order of event frequencies

<i>Type of gambling</i>	<i>Time gap between gambling outcomes (approx.)</i>	<i>Continuity</i>
Slot machines (e.g. fruit machines, video poker machines)	5-10 seconds	Continuous
Video lottery terminals	5-10 seconds	Continuous
Instant scratchcards	5-10 seconds	Continuous
Roulette	1-2 minutes	Continuous
Blackjack	1-2 minutes	Continuous
Keno	5 minutes	Continuous
Bingo	5-10 minutes	Continuous
Race betting (e.g. horse, greyhound etc.)	5-20 minutes	Continuous
Sports betting (e.g. football, cricket etc.)	Every few days*	Discontinuous
National Lottery	3-4 days	Discontinuous
Football Pools	7 days	Discontinuous

* Sports betting for some people could become very habit-forming given the amount of different activities that people can gamble upon. However, the likelihood is that most people who gamble on these types of activity do so only occasionally.

Figure 2: List of lotteries in Catalonia (adapted from Jiminez-Murcia, 1999)

Since April 17th 1986, the Catalonian Government has had total responsibility of lotteries and other games in the Catalonian Community. The Department for Regulation of Gaming Industries has:

- 1 - Loto Ràpid (instant lottery) since April 1987.
- 2 - Loto 6/49 (On-line system) since October 1987.
- 3 - Trio (On-line system) since November 1988.
- 4 - Super 10 (On-line system) since October 1990.
- 5 - Loto Express (On-line system) since January 1993.
- 6 - Supertoc (On-line system) since November 1994.
- 7 - Pica 3 (On-line system) since November 1998.
- 8 - Pica 5 (On-line system) since November 1998.

Description of games

- 1 - Loto Ràpid: Instant. "Rasca-rasca" (Scratchcard).
- 2 - Loto 6/49: On-line lottery, half-active. 6 numbers from 49. Two times a week. Reward: 6/6 of 100 millions pesetas and 100 pesetas for redintegration.
- 3 - Trio: On-line lottery. Chose 3 numbers between 0 and 9.
- 4 - Super 10: On-line lottery (keno). Chose 10 numbers from 68.

5 - Loto Express: On-line lottery (keno). Chose between 3 and 10 numbers from 1 to 70. They can bet every 3 minutes and you have to select 20 combination numbers.

6 - Supertoc: Interconnected lottery. It is a kind of bingo game and the place to gamble is in the Bingos of Catalonia. 3 times a day and the actual combination is 18/90. Every ticket is formed by 18 numbers from 90. There are two rewards: One for the first people in the bingo hall, who have the combination (toc) and another one for the first people in all the bingos in Catalonia (at the same moment) who have the combination (supertoc). The reward is a percentage of the bingo's benefit (everyone) or of the all bingo's hall of Catalonia respectevly.

7 - Pica 3: On-line lottery. Chose 3 numbers from 90. Five times a week (Monday to Friday). There are 6 kinds of reward.

8 - Pica 5: On-line lottery. Chose 5 numbers form 35. Five times a week. There is 5 kind of rewards.