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Updates on current research

Gambling prevalence and practices in France in 2010

This issue of* Tendances *presents the first French data on gambling practices, which came from the Baromètre santé 2010 health survey of the INPES (OFDT/INPES).

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In France, there have been several recent public reports (Trucy, 2006; INSERM, 2008) on gambling. The purpose of these reports was not only to examine the economic impact of gambling, but also the public health impact, given the personal and social problems that may result from problem gambling.

However, the scope of these problems was not quantified. In order to fill this informational gap, the public authorities commissioned the OFDT to carry out the first national gambling prevalence survey in France. This survey was conducted as part of the INPES (the French National Institute for Prevention and Health Education) *Baromètre santé* 2010 health survey. The objective was to gather data on the number of gamblers, both occasional and regular, and to estimate the size of the problem gambling or pathological gambling population. Since this estimate only pertained to the period preceding the opening up of the French online gambling market to competition (French law of 12 May 2010), it cannot be used to measure the impact of this legislation on the prevalence of problem or pathological gambling.

Background

A long-standing, significant economic sector

Originally prohibited in France, gambling was progressively legalised starting in the last third of the 18th century, when the Loterie royale (Royal Lottery authority) was created.

Casinos began developing in France in the 19th century (following the 1806 decree empowering the Prefect of Police (*Préfet de police*) to deliver special casino authorisations for seaside resorts); then, in the 20th century, the French horse racing economic interest group (*Pari mutuel urbain* - PMU) was created in 1931 and the National Lottery (*Loterie nationale*) in 1933. Together, Casinos, the PMU and the *Loterie nationale* still have the lion's share of the gambling sector in France.

- There are 197 casinos in France. Despite an activity that is on the decline, the GGR (Gross Gaming Revenue, or bets minus wins) of these casinos was 2.5 billion euros in 2007 (Lamour, 2009). There were 37.4 million casino visitors in 2008. The majority of French casinos are owned by four leading groups, which are under the control of the French government (the French Ministries of the Interior and Finances) and local authorities.
- The PMU manages monetary horse racing bets that are placed outside of the racecourses. The tiercé (betting on which horses will come in first, second and third), created in 1954, was followed by an increase in the number of races and a diversification of bets (quarté – first four horses, and quinté, first five horses). The turnover of the PMU (which has nearly 10,400 points of sale) was 9.3 billion euros in 2009 (twelfth consecutive year of growth) for 6.5 million customers. Since 2010, the PMU has diversified its online range (to include sports betting and games like poker).
- The *Française des jeux* (FDJ), which succeeded the Loterie nationale in 1976, oversees lottery (*Loto*, *Keno*), sports betting (*loto sportif*), and scratchcard games. The FDJ is a public-private partnership, of which the French government holds more than 70%. Its turnover was 10.55 billion euros in 2010. Most of the company's turnover is generated through its retail network (35,800 points of sale in 2010). In late 2009, an online gaming offering became available; it represented 3.7% of the turnover in 2010. That same year, the FDJ recorded 27.8 million gamblers.

Gamblers' bets and net expenditures (bets minus wins) significantly increased in the last few years, as did the gambling operators' turnover. In 2005, payout ra-

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tios (percentage of bets redistributed to players) were approximately 60% of turnover for the FDJ, over 70% for the PMU and 85% for casinos. Average gambling expenditures were estimated to be 134 euros per year per French inhabitant (Trucy, 2006).

The French law of 12 May 2010 regulated Internet gambling and opened it up to competition. This concerns three sectors: sports bets, horse racing bets and poker. The law has an economic dimension, the objective of which is to make a regulated, legal offering available, which remains economically viable and "competitive" in comparison with the illegal offering, and a legal dimension aimed at combating illegal gambling sites. One year after its liberalisation, the legal Internet gambling offering led to the creation of 2.9 million active player accounts (ARJEL, 2011).

In total, the gambling industry has customer volumes in the millions and considerable turnover (37 billion euros in 2006), thereby funding tens of thousands of direct and indirect jobs. The tax revenue generated is also in the billions (4.6 billion euros in 2005). In Europe, the annual earnings of the gambling services sector in 2008, in terms of gross gaming revenue, were estimated to be 75.9 billion euros, of which 6.16 billion were generated by online services alone. Though still representing a minority of the earnings (7.5% of the gambling market earnings as a whole), online gambling is experiencing high growth and volumes should double within five years (European Commission, 2011).

Law no. 2010-476 of 12 May 2010 on the opening up to competition and regulation of the online gambling sector1[1]

Confronted with the rapid growth of the illegal online gambling offering, and in response to warnings from the European Commission, 2010 saw the French authorities adopt a regulatory framework for the online gambling sector. The transposition of a European Directive into French law (law no. 2010-476 of 12 May 2010, NOR: BCFX0904879L) introduced a "controlled opening up to competition" of the online gambling market (sports bets, horse racing bets and table games, like poker). This finally put an end to the state-held monopolies of the *Française des jeux* and the PMU. The law entrusts the regulation of the online gambling market to an independent administrative authority (*Autorité de régulation des jeux en ligne* - ARJEL), which is responsible for approving Internet gaming operators, supervising their activity, and, along with the French Ministries of the Interior and Justice, helping fight against illegal gambling.
Today, there are around forty ARJEL-approved operators overseeing approximately 80 gaming websites. Approvals are valid for 5-year renewable periods, subject to compliance with certain specifications. Approved operators are subject to taxation as follows: 7.5% on bets for sports and horse racing, and 2% on poker bets. A portion of this tax revenue is earmarked to fund general interest measures in the areas of health care (fighting against gambling addiction) and French heritage preservation. In addition to these taxes, sports bets financially contribute to French amateur sports funding, and horse racing bets for French equestrian activity funding. Furthermore, the law provides for a group of measures that aim to fight against non-approved websites. The organisation of illegal Internet gambling is punishable by three years' imprisonment and a 45,000 euro fine. Advertising an unapproved site is also punishable. Access to these sites and financial transactions between illegal operators and players can be blocked.

Methodology

Problem gambling: concepts and assessment

Pathological gambling has been analysed as a behavioural addiction in the scientific literature for the past thirty years or so (INSERM, 2008; Shaffer, 1999).

Gambling practices are described along a continuum from "controlled" to "at risk" (low to moderate) to "pathological". The descriptions change according to the level of risk: hence, the highest level of risk can be described as pathological, potentially pathological, problem or excessive gambling. The terminology used in this article is defined in the box on page 3.

Internationally, prevalence studies are based on these different concepts and the corresponding identification tools. Today, there are several tools available to classify an individual in a category according to different criteria. Of these tools, which were originally developed for clinical reasons, the three main tools tested and validated for epidemiological use[2] are the South Oaks Gambling Screen (SOGS), the adapted DSM-IV test and the Canadian Problem Gaming Index (CPGI).

Although the DSM-IV criteria are the reference for clinically diagnosing pathological gambling, assessing patients requires clinical expertise, which makes this approach less appropriate in general population studies. The SOGS was designed based on the DSM-III and is undoubtedly the scale that is most widely used in epidemiological studies. Nevertheless, it is the subject of criticism because it generates many false positives (gamblers identified as pathological by the test even though they do not fulfil the clinical criteria), thereby overestimating the prevalence of pathological gambling. The CPGI focuses more on the problems related to gambling and their consequences. It is a more gradual approach than the SOGS because it adds a measure of intensity for each item (see the opposite box). It also provides prevalence rates that are closer to those of the DSM-IV. This is why the CPGI, which tends to be used in more recent surveys, was selected within the scope of the first French survey, performed in 2010.

This tool, which was developed in the early 2000s by a Canadian team (Ferris, 2001), has 9 items, each with a scale of 0 to 3 according to the frequency of occurrence. The overall score can therefore range from 0 to 27, and establishes the following typologies: "non-problem gambler" (score = 0), "low-risk gambler" (score = 1-2), "moderate-risk gambler" (score = 3-7) and "probable pathological gambler" (score = 8 or over).

Canadian Problem Gambling Index (CPGI)

Questions:

Over the last 12 months...
Have you bet more than you could really afford to lose?
Have you needed to gamble with larger amounts of money to get the same feeling of excitement?
When you gambled, did you go back another day to try to win back the money you lost?
Have you borrowed money or sold anything to get money to gamble?
Have you felt that you might have a problem with gambling?
Has gambling caused you any health problems, including stress or anxiety?
Have people criticized your betting or told you that you had a gambling problem?
Has your gambling caused any financial problems for you or your household?
Have you felt guilty about the way you gamble or what happens when you gamble?

Responses and accompanying score (per question):
Never (0), Sometimes (1), Most of the time (2), Almost always (3)
Score calculation: total of the scores of the 9 items
Interpretation:
Non problem gambler: 0 - Low risk gambler: 1-2
Moderate risk gambler: 3-7 - Probable pathological gambler: ≥ 8

1. French JO (official journal) no. 110 of 13 May 2010.

2. To be able to be used in an epidemiological survey, an identification test must have a limited number of items so that the questionnaire is not too cumbersome. Even though this can lead to imprecision in individual classification, it generally has no impact on a collective measurement like prevalence.

Different types of gamblers

Typology according to intensity of gambling (frequency or amount spent):

Person who gambled in the previous year: gambled at least once in the last 12 months.

Occasional gambler: gambled at least once but fewer than 52 times in the last 12 months.

Active gambler: gambled at least 52 times in the last 12 months (**regular gambler**) and/or bet at least 500 euros in the last 12 months (**heavy spender**); an active gambler is therefore either a regular gambler or a heavy spender, or both.

Typology according to CPGI score:

Non-problem gambler: gamblers who do not fulfil any of the criteria indicating that they may experience difficulties related to their gambling behaviour (CPGI score of 0).

Low-risk gambler: gamblers who fulfil criteria indicating that it is unlikely that they will experience difficulties related to their gambling behaviour (CPGI score of 1-2).

Moderate-risk gambler: gamblers who fulfil criteria indicating that they may experience difficulties related to their gambling behaviour (CPGI score of 3-7).

Probable pathological gambler: gamblers who fulfil criteria indicating that they are experiencing serious difficulties related to their gambling behaviour (CPGI score of 8 or more).

Other terms used:

Problem gambler: generic term frequently encountered in the English literature; used here to indicate people experiencing difficulties related to their gambling. In CPGI terms, all probable pathological gambler and moderate-risk gamblers are considered part of the problem gambling population.

Pathological gambler: refers to gamblers with a clinical diagnosis for their problems (fulfilling DSM-IV criteria). Different assessment scales approach this concept without making a formal diagnosis: a problem gambler, in CPGI terms, can be qualified as a probable pathological gambler.

Survey protocol

The first estimation of the prevalence of problem gambling in France was performed by integrating a set of questions on gambling into the INPES Baromètre santé 2010 health survey (see Methodology box, page 8).

Inserting such questions into a general survey on health behaviour was justified due to the interest in studying the relationships between gambling addiction and other addictions and/or psychiatric comorbidities, for which more in-depth analyses may be performed.

However, the gambling section needed to be brief. Gambling questions were analysed in 25,034 subjects aged 18-75. The large sample size enabled precision in estimating the prevalence of a relatively rare behaviour in the population.

In order to limit the duration of questioning for the individuals who were the least concerned by these questions, a filter was used. It consisted of an initial general question on the frequency of gambling and the amounts spent on gambling in the previous year. Hence, only "active gamblers", i.e., people who played repeatedly over the last 12 months (52 times or more) or who bet large sums (500 euros or more), were asked to respond to the other questions in the gambling module.

In addition to the CPGI questions (see page 2), this module included information on the types of gambling, as well as their frequency. The eight major categories are: lottery, scratchcard, Rapido (betting on video lottery terminals – VLT), horse racing, sports bets, slot machines, casino and poker.

The results

After presenting the prevalence in the general population and a description of all people who had gambled in the previous year, the results on the study population, i.e., on active gamblers, will be described in detail.

People who gambled in the previous year

Nearly one out of every two people (47.8%) aged 18 to 75 (figure 1) stated having gambled with money over the last 12 months. A large majority of people who gambled did it occasionally and only wagered rather small sums of money. In fact, only slightly more than one out of every 5 gamblers (i.e., 10.9% of the general population) gambled regularly during the year (52 times or more) and a little less than one out of every ten gamblers (i.e., 4.7% of the general population) stated spending more than 500 euros in the previous year.

Moreover, there were significant differences between gamblers in terms of frequency and amounts gambled.

Gender seems to be a discriminating factor in the level of gambling. More men (51.3%) than women (44.4%) stated gambling in the last 12 months. This difference became more marked as gambling activity intensified: 13.8% of men gambled at least once a week (regular gamblers) versus 8.0% of women; 7.1% of men gambled more than 500 euros in the previous year (heavy spenders) versus 2.5% of women.

Gambling occurred more frequently among adults aged 25 to 34, and then less frequently in subsequent age groups. However, the proportion of regular gamblers steadily increased with age. Subsequently, while only one out of every ten gamblers under the age of 25 gambled regularly, one out of every five gamblers aged 45 to 54 and almost one out of every three gamblers aged 65 and over (figure 2) gambled regularly.

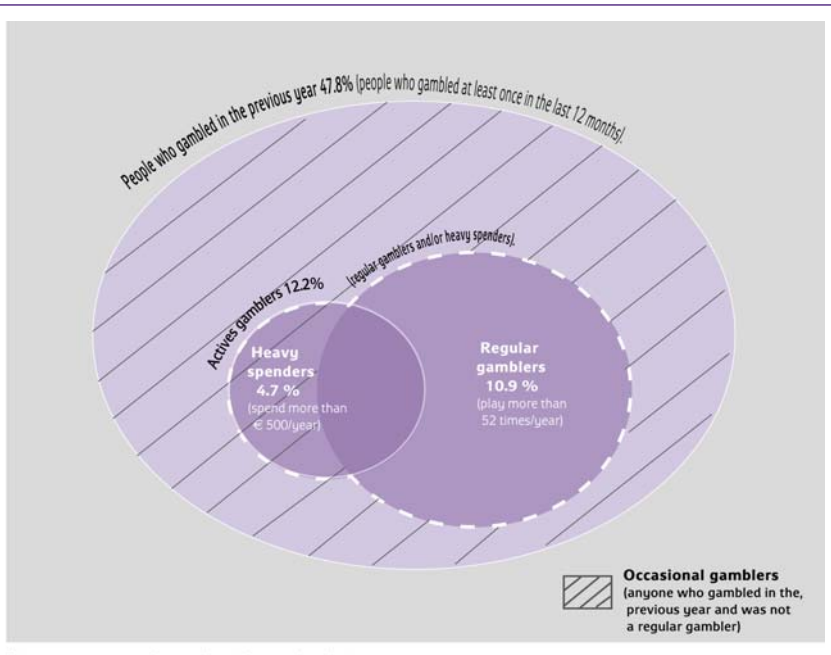
People who gambled in the previous year did not seem to be different from the general population in terms of income and education, both of which are discriminating factors in the most regular gamblers, as shown in table 2.

"Active gamblers"

Active gamblers, i.e., people who gambled at least 52 times and/or spent at least 500 euros in the last 12 months (see figure 1 and box) represented 12.2% of the general population (15.6% of men and 8.8% of women). Of them, 89.3% were regular gamblers (gambled more than 52 times in the previous year), 39.1% were heavy spenders (bet more than 500 euros in the previous year) and 28.2% were in both categories.

A large majority of active gamblers spent less than 500 euros in the previous year (60.9%) and only 7.1% gambled over 1,500 euros (see figure 8). These were mainly men (62.7%).

Figure 1 - Typology of gamblers among people aged 18-75



Source: Baromètre santé 2010, Gambling module; INPES/OFDT

Their average age (47 years) was clearly higher than the average age of people who gambled in the previous year (43 years) and of all people surveyed (45 years) (see table 2). At this stage, the educational level also seemed to correlate with gambling. The more intense and frequent the gambling, the lower the proportion of people with diplomas and degrees; while 76.2% of the population surveyed had no higher than a secondary school diploma/certificate, the corresponding proportion was 77.7% for people who gambled in the previous year and 87.0% for active gamblers. Slightly more than one out of every five active gamblers had no diploma/certificate (21.6%) versus 17.1% of the general population.

Gambling and the gambling public

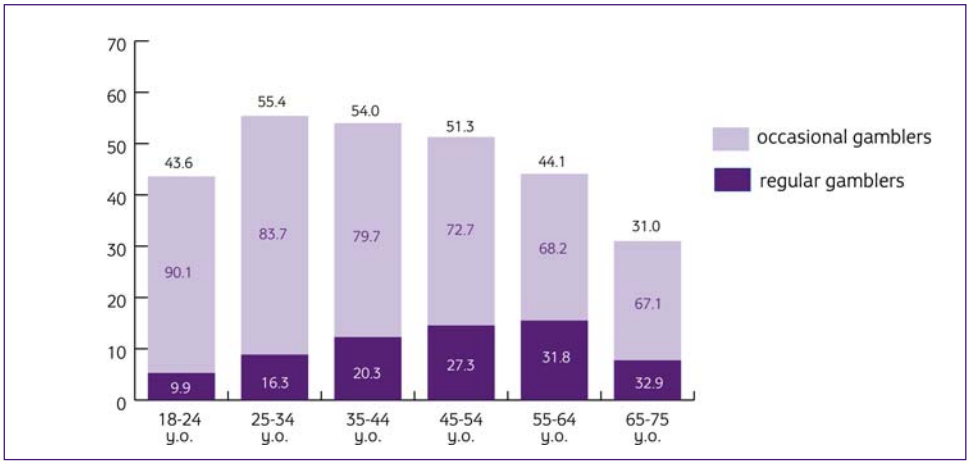
Lottery and scratchcard games require very little, if any, prior learning/training to play. These were the most frequently practiced gambling activities, with 75.0% and 62.2% respectively of active gamblers stating that they played such games in the last 12 months (see figure 3).

In contrast, certain games require personal investment or "expertise", which somewhat limits the potential number of gamblers. This was the case for horse race and sports betting, which seemed to remain activities for the initiated, given the lower number of betters. For other forms of gambling (e.g., table games, slot machines and poker), limited accessibility, due to their location and the rules for entering casinos (or table games), explains the relatively low number of gamblers.

The proportion of active gamblers who engaged in a given type of gambling on a weekly basis varied significantly depending on the type of gambling. It was highest for lottery (71.1%) and horse race betting (61.7%), in a minority position for other games, and practically non-existent for slot machines and casino table games (see figure 3).

Overall, active gamblers were mainly men, as we saw before. The breakdown by gender of the game categories provides further detail.

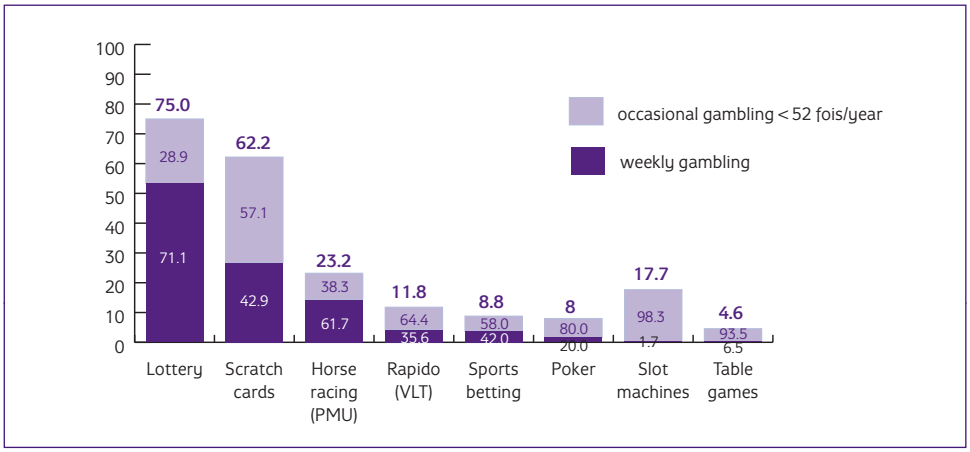
Figure 2 - Frequency of gambling among people aged 18-75 (in %)



Reading: Among 18- to 24-year-olds, 43.6% stated having gambled at least once in the previous year. Of this group, 9.9% did so weekly and 90.1% did so less than once a week.

Source: Baromètre santé 2010, Gambling module; INPES/OFDT

Figure 3 - Prevalence of gambling among active gamblers in the last 12 months according to the type (in %)



Reading: Among active gamblers, 75.0 % stated having participated in a lottery at least once in the previous year. Of this group, 71.1% stated having played on a weekly basis.

Source: Baromètre santé 2010, Gambling module; INPES/OFDT

Of the eight gambling categories studied, only two – lottery and slot machines – were practiced with the same frequency by men and women. For five other families (horse racing bets, sports bets, Rapido, casino table games and poker), the proportion of enthusiasts was higher among men than women. This was particularly marked for gambling with a sports dimension (horses and sports betting in particular): in these latter categories, among men, 31.2% and 13.4%, respectively, were classified as "active players" versus 9.7% and 1.6% among women. In contrast, 71.8% of active female gamblers did scratchcards versus 57.0% of active male gamblers.

Gambling practices among active gamblers also varied with age (see figure 4). Of the two most frequent types of gambling, lottery was fairly stable, while scratchcard playing declined progressively with age: 81.0% of active gamblers aged 18 to 24 (who stated gambling in the last 12 months) versus 49.3% of active gambling seniors (aged 65-75). Poker was mainly played by young people: 35.2% of people aged 18-24 (versus 22.4% for those aged 25-34 and 8.0% for all active gamblers), while gamblers who bet on horse races tended to be older.

Online gambling

When the study was being conducted, which was prior to the application date for the 12 May 2010 law that opened up and regulated the online gambling market in France, most Internet gambling was illegal. This survey helped assess the prevalence of online gambling just before the legislative change; this will make it possible to assess the impact of the new law at a later date.

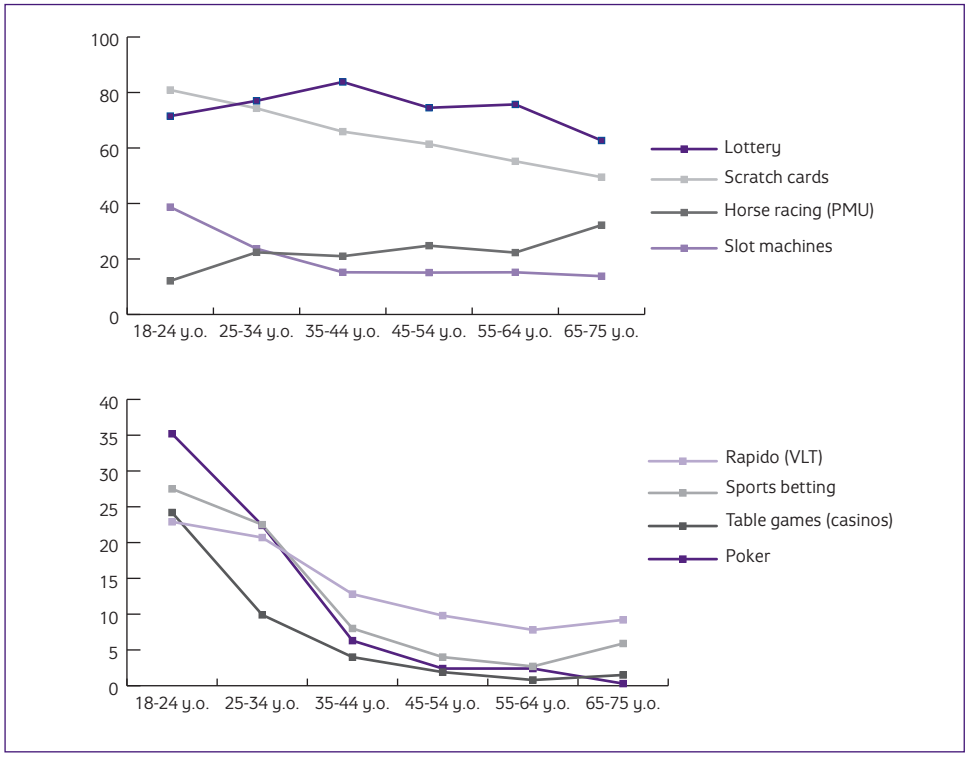
Of the active gamblers, 9.1% stated that they engaged in online gambling during the course of the year, and 4.7% of these gamblers stated engaging in such gambling on a weekly basis at least. The frequency profile per game type was markedly different than for non-Internet gambling. Among active Internet gamblers, three types of gambling clearly stood out: sports gambling, poker and lottery (see figure 5). This online gambling population was mainly male (81.6%) and young adults: nearly half of online gamblers (45.1%) were under the age of 35, and the 25-34 age range had the highest proportion of Internet gamblers (slightly more than one out of every five active players, or 20.3%).

"Problem" gambling

Prevalence in France

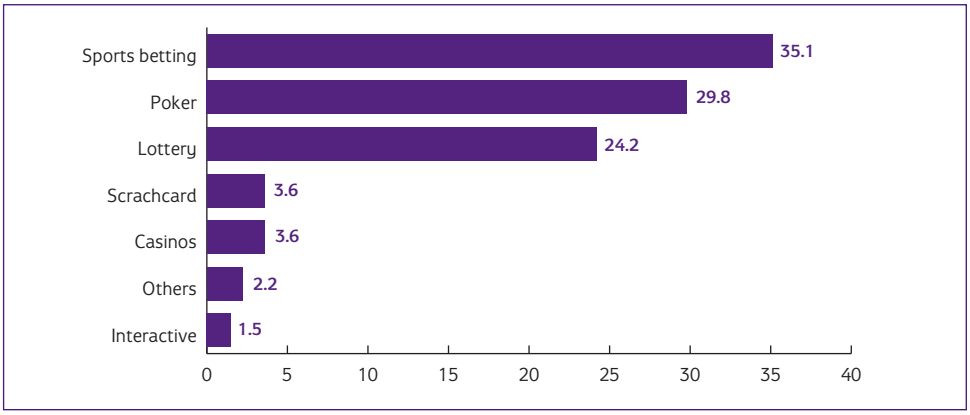
The tool for identifying gambling problems used in this survey (CPGI) helped measure the level of risk in active gamblers. According to the CPGI scale, 3.7% of active gamblers were classified as probable pathological gamblers, 7.1% as moderate-risk gamblers and 12.2% as low-risk gamblers (see table 1).

Figure 4 - Proportion of active gamblers engaging in different types of gambling by age (in %)



Source: Baromètre santé 2010, Gambling module; INPES/OFDT

Figure 5 - Types of gambling most often seen among active Internet gamblers (in %)



Source: Baromètre santé 2010, Gambling module; INPES/OFDT

Table 1 - Prevalence of "problem" gambling in the French population aged 18 to 75 (in %)

CPGI Index : prevalence in %		95 % CI
Among « active gamblers »		
Non-problem gamblers	77.1	[76.1-78.1]
Low risk gamblers	12.2	[11.4-12.9]
Moderate risk gamblers	7.1	[6.4-7.7]
Probable pathological gamblers	3.7	[3.2-4.1]
Among the population as a whole		
Moderate risk gamblers	0.9	[0.78-0.94]
Probable pathological gamblers	0.4	[0.38-0.50]

Source : Baromètre santé 2010, Gambling module ; INPES/OFDT

Based on the hypothesis that probable pathological gamblers and moderate-risk gamblers are all active gamblers, we can extrapolate to determine prevalence among people who gambled in the previous year and the general population (see Discussion section).

The prevalence of probable pathological gambling in metropolitan France was subsequently estimated to be 0.4% and that of moderate-risk gambling 0.9%. This translates into approximately 200,000 probable pathological gamblers and 400,000 moderate-risk gamblers in France.

Of the criteria that help identify problem gambling (CPGI items), those most frequently encountered among active gamblers were: problem gambling perceived by self or others, the unrealistic desire to "start over" and the feeling of losing control (spending more than intended) (see figure 6).

Profile of probable pathological gamblers and related factors

Sociodemographic characteristics

"Probable pathological gamblers" stood out from all other gamblers through certain features. They were more often men: 75.5% of probable pathological gamblers were men versus 62.7% of active gamblers (see table 2).

Probable pathological gamblers were much younger than active gamblers (41 years of age on average versus 47 on average, respectively). The proportion of probable pathological gamblers among active gamblers varied markedly with age. It was among people aged 25-34 that we found the highest proportion of probable pathological gamblers (6.9%), followed by people aged 45-54 (4.7%) and 18-24 (4.4%).

This population was also characterised by financial instability; 57.8% of this population stated a monthly income of less than 1,100 euros versus 34.7% of active gamblers. Slightly more than half of them lived with a partner (55.2%) versus 70.7% of active gamblers as a whole. Over one out of every three probable pathological gamblers had no diploma or degree and nearly all probable pathological gamblers had an educational level no higher than a secondary school degree or certificate. These proportions were much higher than those observed in active gamblers or in people who gambled in the previous year.

Gambling practices

Of active gamblers, there was a higher proportion of problem gambling in people who regularly play Rapido, bet on horse racing, engage in sports betting and play poker (the number of gamblers regularly playing table and slot machines games was too low to enable such an analysis) (see figure 7). An adjustment of the key sociodemographic variables (age, sex, education, income) revealed that Rapido, horse race betting and sports betting were more frequently associated with problem gambling.

The proportion of moderate-risk or probable pathological gamblers varied depending on the gambling category and did not necessarily appear to be related to gambling regularity. Lottery games were the type for which gamblers were the most consistent. Of active gamblers, 71.1% of experienced lottery enthusiasts played regularly (i.e., more than 52 times in the previous year, see figure 3), and of these regular lottery gamblers, only 5.0% had a moderate-risk gambling activity and only 3.2% were classified as probable pathological gamblers (see figure 7). In contrast, regular Rapido, horse racing and sports gamblers were a minority among active players of these games, but these practices appeared to be more related to problem gambling. Hence, of active gamblers, only 35.8% of Rapido gamblers played more than once a week on average, while 13.0% of regular Rapido gamblers were considered moderate-risk gamblers and 28.1% were considered probable pathological gamblers.

Generally speaking, the activity of no-risk active gamblers focused mainly on lottery (76.5% of gamblers) and scratchcard games, while the other games attracted less than 20% of this population.

Figure 6 - Frequency of problem gambling criteria among active gamblers aged 18 to 75 (in %)

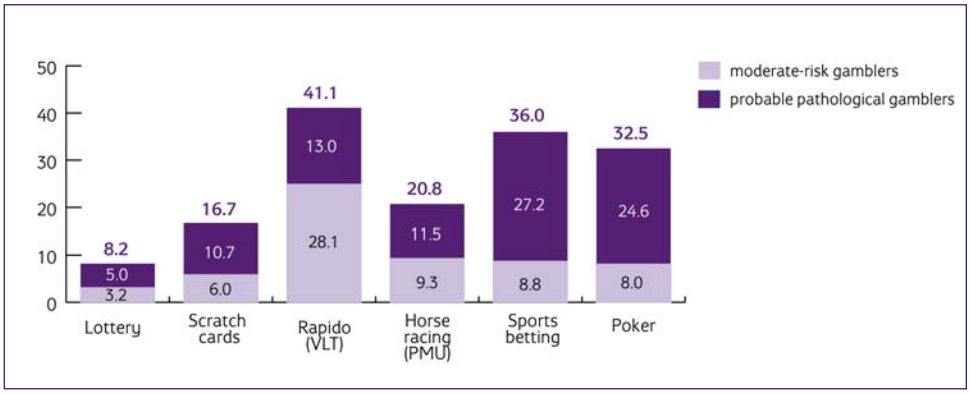
Source: Baromètre santé 2010, Gambling module; INPES/OFDT

Table 2 - Socioeconomic characteristics of gamblers (% and years)

	Men	Mean age	Income ≤ 1 100 €	No diploma or degree	Living with partner
General population 18-75 years (N = 25,034)	48,6	44,9 years	34,7	17,1	65,5
People who gambled in the previous year (N = 11,780)	52,2	43,3 years	32,7	16,3	67,7
of which Active gamblers (N = 2,762)	62,7	47,2 years	34,7	21,6	70,7
Moderate risk gamblers (N =179)	76,1	41,6 years	52,4	33,2	53,7
Probable pathological gamblers (N = 79)	75,5	41,4 years	57,8	36,3	55,2

Source: Baromètre santé 2010, Gambling module; INPES/OFDT

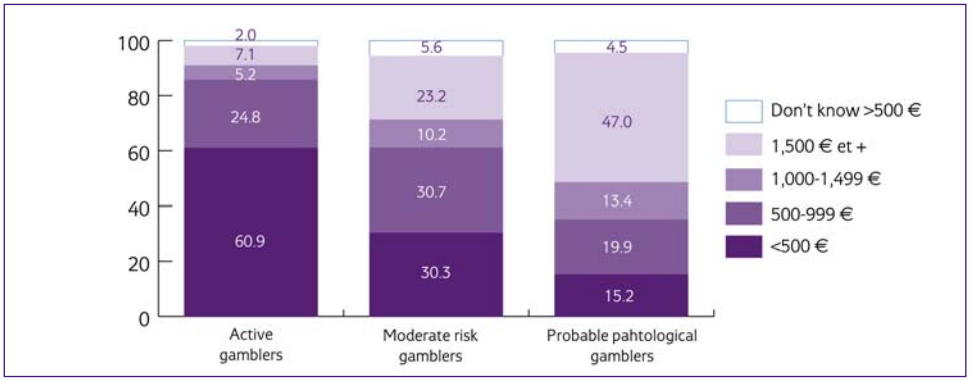
Figure 7 - Percentage of problem gamblers among active gamblers who regularly gamble by gambling category



Reading: Among active gamblers, 13.0% of those who played Rapido at least 52 times in the previous year did so excessively, and in total, 41.1% were problem gamblers.

Source: Baromètre santé 2010, Gambling module; INPES/OFDT

Figure 8 - Amounts bet in the last 12 months (in %)



Source: Baromètre santé 2010, Gambling module; INPES/OFDT

In contrast, probable pathological gamblers had much more eclectic tastes (more than 25% of them took part in six of the eight gambling categories). The real difference pertained to the practice of rare games.

There were higher numbers of probable pathological gamblers among active gamblers who played online. Nearly one of every ten online gamblers was categorised as a probable pathological gambler (8.3%) and 14.4% were moderate-risk gamblers. Of the three main types of online gambling practised (sports betting, poker and lottery) by active gamblers, poker and sports betting had particularly high numbers of probable pathological gamblers (approximately 10%). Nevertheless, it is appropriate to remain cautious regarding interpretation given the low population numbers involved (79 probable pathological gamblers in the sample of 264 online gamblers).

Total bet amounts

Problem gamblers bet more than other gamblers: nearly half of the probable pathological gamblers (47.0%) spent more than 1,500 euros per year versus 23.2% of moderate-risk gamblers and 7.1% of all active gamblers (see figure 8). Furthermore, for 25% of the heavy spender gamblers (i.e., who spent the most, last quartile), their annual wagers exceeded 520 euros for all active gamblers, 1,300 for moderate-risk gamblers and 3,000 euros for probable pathological gamblers.

Use of psychoactive substances

This survey also examined the use of the most common psychoactive substances among probable pathological gamblers and/or moderate-risk gamblers (see table 3).

In 2010, the proportion of daily smokers in the general population was approximately 30%. Nearly one out of every three people who had gambled in the previous year smoked daily (34.0%, only slightly more than in the general population). Approximately two out of every three probable pathological gamblers were daily smokers (64.2%). This difference remained significant after adjustments for gender, age, educational level and income level.

The riskiest alcohol consumption (scale used: AUDIT-C[3]) was more frequently encountered among gamblers than among the general population. This overrepresentation was emphasised in probable pathological gamblers: 26.3% were at risk of alcohol dependence and half of them (50.5%) displayed at-risk use (versus 3.2% and 15.5% respectively in the general population).

Monthly cannabis use among people who gambled in the previous year was comparable to that of the general population (4.3% versus 4.4%); monthly cannabis use among probable pathological gamblers was higher (6.1%).

3. Alcohol Use Disorder Identification Test, developed by the WHO to identify at-risk alcohol consumers.

Table 3 - Psychoactive substance use among gamblers (in %)

	Tobacco		Alcohol*		Cannabis**		Other illegal drugs
	Daily	≥ 10 / day use	At risk risk	Dependance previous month	In the month	≥ 10 / previous year	Use in the
General population 18-75 years (N= 25,034)	29.7	20.6	15.5	3.2	4.4	2.1	2.2
People who gambled in the previous year (N = 11,780)	34.0	24.7	17.7	3.6	4.3	2.3	2.2
of which Active gamblers (N = 2,762)	36.2	27.2	21.0	5.0	3.7	2.0	2.1
Moderate risk gamblers (N = 179)	50.2	41.5	33.6	9.9	13.6	6.5	4.1
Probable pathological gamblers (N = 79)	64.2	50.1	50.5	26.3	6.1	5.3	6.4

** AUDIT-C. in three classifications* *** Data available on population aged 18-64*
Source: Baromètre santé 2010, Gambling module; INPES/OFDT

A multivariate analysis of sociodemographic variables[4], daily tobacco use, degrees of alcohol dependence, monthly cannabis use and annual use of other illegal drugs, revealed a significant relationship between the most at-risk gambling practices and alcohol, tobacco and cannabis use (respective Odds Ratios: alcohol dependence OR = 2.8***, tobacco OR = 1.6**, cannabis OR = 2.0*[5]).

Discussion / Outlook

This initial study to assess problem gambling in France helps evaluate the significance of a phenomenon that, until now, has been poorly understood in terms of public health.

Methodological limitations

It is nevertheless appropriate to describe the methodological options selected and possible limits that may result from them.

The calculation of the prevalence of problem gambling (probable pathological or moderate-risk, according to the CPGI scale) in the French population, as it was performed within the scope of this survey, was based on the assumption that the people affected by this problem were necessarily in the active gambler sample.

Such an assumption seems solid with respect to the work of those researchers who analysed the relationship between, on the one hand, the frequency of gambling and its problematic nature and, on the other hand, the amounts gambled and the problematic nature of gambling (Orford, 2003a; Kairouz, 2011).

Therefore, it is highly likely that there were only very limited numbers of probable pathological gamblers or moderate-risk gamblers among those people who had gambled less than 52 times in the previous year and who had wagered less than 500 euros over the course of the year. The underestimation of the prevalence of problem gambling related to the study's focus on active gamblers can therefore be considered as altogether minor.

Only surveying active gamblers has another effect on the extrapolation of the results to the general population.

The study did not provide a description of the activity of occasional gamblers. Therefore, we cannot calculate the prevalence by gambling category or by population subgroup in the general population since we do not know how many people are in the denominator population.

Hence, 27.5% of active gamblers who frequent casinos were defined as problem gamblers. However, since the number of "non-active gamblers" (i.e., those spending under 500 euros per year and gambling fewer than 52 times a year) is unknown, it is not possible to calculate the prevalence of probable pathological gambling among casino gamblers.

The addictive nature of certain types of gambling, although seemingly supported by results published in the literature (INSERM, 2008; Griffiths, 1999; Orford, 2003b), should therefore be interpreted with caution since it was only established among a population of active gamblers.

This active gambler filter is, nevertheless, relevant from a public action point of view since it helps identify a potential at-risk population that would be a priority target for preventive actions. The analysis of this subpopulation is therefore interesting as such.

The prevalence of problem gambling in other countries

This initial estimate of problem gambling in France is also an opportunity to compare the situation between France and other countries that have conducted equivalent national surveys.

However, the prevalence measured largely depends on the tool used. Generally speaking, it appears that prevalence levels calculated using the SOGS are higher than those established using the DSM-IV, and the CPGI gives prevalence levels somewhere in between. These differences have been documented by the surveys using several identification tools at once among samples from the same populations and were discussed in the international literature (Derevensky, 2000; Ferris, 2001; Orford, 2003a, Orford, 2003b). The differences in the scales do not facilitate comparisons of problem gambling prevalence (see table 4) and make international harmonisation desirable with, in the long run, the use of a generally accepted identification tool and common terminology.

Today, the United States and Australia have a relatively high prevalence of problem or pathological gambling in the general population (approximately 5%).

Table 4 - Prevalence of problem gambling in the various countries that conducted a national survey (in %)

	Problem gamblers*	Of wich pathological gamblers**	Year	Sample size	Tool	Reference
Unites States	5,5	1.9	2000	2,638	SOGS	WELTE, 2001
Australia	4.9	2.1	1999	10,600	SOGS	Australian Gov., 1999
Italy	2.2	0.3	2007	7,234	CPGI	A paraître
Canada	2	0.5	2002	34,770	CPGI	COX, 2005
Sweden	2	0.6	1998	7,139	SOGS	RÖNNBERG, 1999
Belgium	2	0.4	2005	3,002	DSM-IV	DRUINE, 2009
Great Britain	1.9	0.5	2007	9,003	CPGI	WARDLE, 2007
Quebec	1.9	0.6	2009	11,888	CPGI	KAIROUZ, 2011
France	**1.3**	**0.4**	**2010**	**25,034**	**CPGI**	**INPES/OFDT, 2010**
Switerland	1.3	0.5	2005	2,803	SOGS	BONDOLFI, 2008
New-Zealand	1.3	0.5	1999	6,452	SOGS	ABBOT, 2000
The Netherlands	0.9	0.3	2004	5,460	SOGS	GOUDRIAAN, 2009
Germany	0.6	0.2	2007	7,980	SOGS	MEYER, 2009
Norway	0.6	0.2	2002	5,235	SOGS	JONSSON, 2006

**Problem gambling : DSM = 3 and + SOGS = 3 and + ICJE = 3 and +*
***Pathological gambling : DSM = 5 and + SOGS = 5 and + ICJE = 8 and +*
Sources : see the bibliography on www.ofdt.fr

4. Sociodemographic adjustment variables: gender, age, income and educational level

5. *: $p \leq 0.05$; **: $p \leq 0.01$; ***: $p \leq 0.001$

The prevalence levels in the few European countries that conducted such studies (mainly in northern Europe) were much lower (1 to 2%). These levels are comparable to those observed in Canada and New Zealand. The differences in prevalence between countries are still largely discussed. The most frequently developed hypothesis is the variable accessibility to gambling.

With a prevalence of probable pathological gambling and moderate-risk gambling of 0.4% and 0.9% respectively (for a total of 1.3%), France has a relatively low prevalence compared to other developed countries that have already performed this type of survey.

Factors associated with problem gambling in the scientific literature

This first French survey helps confirm certain data from the international scientific literature on the factors associated with "problem gambling". Hence, we find the more masculine nature of problem gambling and the fact that it occurs more frequently among socially underprivileged populations. Regarding the interpretation of this last result, we should reiterate the importance of the references to financial problems in the CPGI questionnaire, which in fact gives economic factors great weight.

The French survey also confirmed the existence of a strong relationship between problem gambling and problem psychoactive drug use, which had been observed previously in many studies (INSERM, 2008). Subsequently, the American reference study for this issue established relatively high risk among problem gamblers for tobacco dependence, alcohol abuse or dependence and illegal drug dependence (ORs adjusted on sociodemographic variables: 6.7, 6.0 and 4.4 respectively) (Petry, 2005).

In the national survey conducted more recently in Quebec, we find the same observations: daily tobacco use, problem alcohol use and alcohol dependence were seen much more frequently among probable pathological gamblers and moderate-risk gamblers than among other types of gamblers (Kairouz, 2011).

This issue of risk factors and problem gambler vulnerability will be examined in more detail by studying the possible relationships between this type of behaviour and the various sociodemographic characteristics and life events, as well as the behaviour or state of health of surveyed individuals.

Other factors associated with gambling addiction and documented in the scientific literature will not be able to be examined within the scope of this survey, but it is appropriate to mention them nonetheless. This firstly concerns the relationship between "precociousness" and "problem". Starting to gamble early in life is recognized as a significant risk factor for gambling addiction. It has also been observed that people in social, familial or legal difficulty are more often confronted with gambling problems. The same holds true for people with problem gambling family histories independent of these difficulties, regardless of the origin.

These points may be addressed in a future survey that will also observe any changes in profiles and practices. This will be especially interesting with respect to legalised online gambling, but may involve other types of gambling as well by further examining those forms that seem to cause the most trouble.

Credits

Louise Nadeau, Marc Valleur and Jean-Luc Vénisse, experts, members of the Survey and Review Supervisory Committee.
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I Methodology I

Since the early 1990s, the French National Institute for Prevention and Health Education (INPES) has been conducting a series of surveys called Baromètre santé with many healthcare participants. These surveys examine the various health behaviours and attitudes of the French. They are random, two-tiered questionnaires (household, then individual) conducted using a Computer Assisted Telephone Interview (CATI) system. The 2010 survey, which was entrusted to the Gfk-ISL institute, took place from 22 October 2009 to 3 July 2010. The telephone numbers were generated at random using French area codes from 01 to 05 (geographic zones), which allowed households with ex-directory numbers to be surveyed.

To be eligible, a household had to have at least one person in the age range under consideration (15 to 85 for the Baromètre santé 2010) and speak French. Within the household, an individual was selected at random from among the eligible household members.

To offset the phenomenon of landlines being replaced with mobile phones for part of the population with special characteristics in terms of health behaviour, a sample of 2,944 individuals from households that could only be reached by mobile phone was questioned in addition to the 23,605 individuals with a landline and a geographical zone telephone number at their home. Furthermore, 1,104 individuals with a landline who were only reachable through a number starting with 08 or 09 were questioned using their mobile telephone number, which helped improve the representativeness of the sample (Beck et al., 2011). In total, the sample comprised 27,653 individuals. The rate of refusal was approximately 40% for the mobile telephone sample and for the landline sample. The questionnaire lasted thirty-two minutes on average.

The data were weighted using the number of eligible individuals and telephone lines in the household (in order to calculate the inclusion probability for each individual, in particular to offset the fact that an individual in a large household had less of a chance of being randomly chosen) and aligned with the most recent national INSEE (French National Institute of Statistics and Economic Studies) reference data, i.e., the *Emploi 2008* employment survey for the preparation of the *Baromètre santé* 2010 database.

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