Pathological gambling: an increasing and underestimated disorder

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Summary

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Pathological gambling, which has recently been proposed to be one of the related conditions belonging to the obsessive-compulsive spectrum disorders, is classified as a disorder of impulse control in the DSM-IV. The more significant characteristics among the diagnostic criteria are: preoccupation with gambling, restlessness or irritability when attempting to cut down or stop gambling, tendency to lie to conceal the extent of involvement with gambling, antisocial behaviour such as forgery, fraud, theft or embezzlement and loss of significant relationships, job, educational or career opportunities.

Pathological gambling is a progressive, chronic disorder which coexists with several comorbid psychiatric conditions. Up to 50% of gamblers have substance use disorders. Depressive disorders, anxiety disorders, obsessive-compulsive disorder and attention-deficit disorder frequently occur in pathological gamblers and some reports suggest that these conditions share a physiological substrate with pathological gambling. The impulsive nature of the condition, coupled with these comorbidities, leads to a high rate (13–20%) of suicide attempts.

Several casinos will open in Switzerland in the near future. As no available data on the prevalence of pathological gambling were available, we have conducted a survey to evaluate the prevalence of pathological gambling in the Swiss adult population before the introduction of new gambling activities and the link between pathological gambling and alcohol abuse. The current prevalence of probable and potential pathological gamblers were estimated to be 0.8 and 2.2% respectively. This means that in Switzerland the number of probable pathological gamblers is between 32 712 and 77 768 (confidence level 95%) and of potential pathological gamblers between 107 090 and 179 759. In this survey, a clear relationship between alcohol abuse and gambling behaviour was found. This correlation has repeatedly been noted in literature regarding studies focusing on treatment populations (i.e. substance abusers or problem gamblers) whereas our study addressed a general population.

In the present article, we focus on the characteristics of the pathological gamblers compared to occasional gamblers and non-gamblers of this study population. Moreover, we consider the correlation between four regions of the country offering different gambling possibilities and the current prevalence rate. The findings of our study show that in cantons (such as Fribourg and Tessin) and regions (Western Lemanic) where availability is higher, so are probable and potential pathological gamblers.

In terms of general treatment strategy, reductions in gambling may be a more viable goal for problem gamblers than abstinence. Options for therapy of pathological gambling include self-help groups, psychodynamic treatments, family therapy, cognitive-behavioural approaches and pharmacotherapy (selective serotonin reuptake inhibitors). However, cognitive-behavioural therapy is the only approach that has been shown to be effective in controlled trials, so far.

Switzerland will see the development of legal gambling and as a consequence, a probable increase in pathological gambling. The results of our study show that pathological gambling is already high and directly influenced by availability. Although pathological gambling is becoming a major health concern, this psychiatric disorder remains largely undiagnosed and untreated in clinical practice.

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Developing awareness and furnishing information to mental health specialists as well and the development of specific programmes for prevention and treatment of pathological gambling in Switzerland seems to be a necessity at the dawning of new casinos.

Keywords: gambling; Switzerland; prevalence; treatment; prevention

Introduction

Gambling is a form of entertainment which has been practised among many cultures for thousands of years. However, a certain proportion of the population develops a compulsive need to gamble and a pathological dependency upon this practice. Although "gambling mania" was described by Kraepelin (as cited by E. Bleuler [1]) more than 100 years ago, the disorder was not officially recognised until its inclusion in the DSM-III in 1980. In the DSM-IV, pathological gambling continues to be classified as a disorder of impulse control which is characterised by a progressive failure to resist impulses to gamble despite serious familial, professional, financial and legal setbacks. The more significant characteristics among the diagnostic criteria are: preoccupation with gambling, restlessness or irritability when attempting to cut down or stop gambling, tendency to lie to conceal the extent of involvement with gambling, antisocial behaviour such as forgery, fraud, theft or embezzlement and loss of significant relationships, job, educational or career opportunities.

The relationships between pathological gambling and other disorders including obsessive-compulsive and/or substance use disorders, remain unclear. Pathological gambling has recently been proposed to be one of the related conditions belonging to the obsessive-compulsive spectrum disorders. These are now recognised as distinct diagnostic entities which include both compulsive and impulsive disorders which can be viewed as lying at opposite ends of the dimension of risk avoidance [2]. Given its clinical features, pathological gambling has also been considered as an addictive disorder and may be a non-pharmacological model of addiction. Several similarities between gamblers and substance misusers have been described such as: seeking an aroused-euphoric state and a frequent preoccupation with seeking out gambling, a tendency to gamble longer than intended and with more money, an equivalent of tolerance as when gamblers have to increase the size of their bets to create the desired amount of excitement, withdrawal symptoms including irritability, restlessness, depressed mood, poor concentration and obsessional thoughts when attempting to stop gambling and eventually a pattern of abstinence and relapse [3].

Pathological gambling coexists with several comorbid psychiatric conditions. Up to 50% of gamblers have substance use disorders. Obsessive-compulsive disorder, attention-deficit disorder, anxiety disorders and depressive disorders frequently occur in pathological gamblers and some reports suggest that these conditions share a physiological substrate with pathological gambling. The impulsive nature of the condition, coupled with these comorbidities, leads to a high rate (13–20%) of suicide attempts [4].

Over the last 30 years, various forms of gambling have been legalised in many countries and this trend does not seem to slow down. As governments experience serious financial deficits, legislators of most western countries have had to legalise many types of gambling such as lotteries and casinos, in order to raise revenues [5]. In Switzerland too, we have been observing an increased offer of legalised gambling opportunities during the last decades. Moreover, according to the popular referendum voted in 1993, several casinos will open in our country in the near future. This increase in gambling activities has motivated researchers to evaluate the prevalence rates of pathological gamblers in different countries [6–8]. These studies identify between 1.0 and 2.5% lifetime rates of adult pathological gamblers. It has now been demonstrated that the prevalence of pathological gambling is related to the availability of gambling opportunities, whether legal or not [9]. Interestingly, several studies indicate that when new gambling activities are introduced, after three years or more, the prevalence of pathological gambling increases [10].

As in Switzerland no available data on the prevalence of pathological gambling were available, we have recently conducted a survey to evaluate the prevalence of pathological gambling in the Swiss adult population before the introduction of new gambling activities and the link between pathological gambling and alcohol abuse [11]. In the present article, we focus on the characteristics of the pathological gamblers compared to occasional gamblers and non-gamblers of this study population. Moreover, we consider the correlation between four regions of the country offering different gambling possibilities and the current prevalence rate.

Table 1 Number of persons interviewed according to regions, number considered for each region to be representative of the real Swiss population, weighted factor.

region	number of persons actually interviewed	number considered to be representative of the Swiss population (%)	weighted factor
Western Lemanic (ZE11)	401	152 (6%)	0.378
Canton of Fribourg	407	61 (24%)	0.149
remaining French-speaking Switzerland	406	386 (15.3%)	0.952
Canton of Tessin	502	120 (4.8%)	0.240
German-speaking Switzerland	810	1807 (71.5%)	2.231
total	2526	2526	1.00

Subjects and method

The SOGS questionnaire (South Oaks Gambling Screen) which is the most commonly used instrument in epidemiological and clinical research to screen (by telephone) persons suffering gambling problems was used [12, 13]. It is composed of 20 items derived from the diagnostic criteria of the DSM-III and the subjects are classified in the following manner: *probable pathological gambler* (probable pathological gambling), if the person interviewed replies affirmatively to 5 or more questions; *potential pathological gambler* (potential pathological gambling), if 3–4 answers are affirmative; *non-gambler,* if 2 answers or less are affirmative. In the classification "non-gambler" occasional or limited gamblers are included.

In our research we also used the CAGE [14], a 4-item questionnaire for detecting alcoholism. Two or more positive answers are considered as indicating a probable alcohol problem. In addition to these two questionnaires, other questions regarding sociodemography and gambling habits were asked.

As in several studies in this domain [13, 15] the telephone interviews were conducted by a survey research firm, LINK Institute, in Lausanne. The pilot-interviews were conducted 15 each in French, German and Italian, under the direct supervision of two of the authors. The survey took place in October and November, 1998; a random-quota method according to sex, age and the occupational status was used to proportionally represent the population of each region. The telephone numbers were selected by computer and only one person was interviewed by household. In case of no answer, the numbers were recalled at least 10 times. 205 did not answer and 59% of those who did accepted to be interviewed, which corresponds to the usual rate in Swiss surveys.

2526 persons were interviewed representing the three main linguistic regions of Switzerland. Their age varied from 18 to 93 (average 43.5; standard deviation 16.4 years).

To analyse the relationship between the availability of gambling, measured by the number of slot machines per 1000 inhabitants, and the prevalence rate of persons with a gambling problem, four regions were chosen: Canton of Fribourg, Western Lemanic Region (ZE11), rest of French-speaking Switzerland, Canton of Tessin. The reasoning at the time of the survey was: the Canton of Fribourg authorised the use of slot machines in casinos as well as public places such as restaurants and bars. The number of machines was estimated at 1200 in 600 establishments. The estimated offer was of 7.03 machines per 1000 inhabitants.

In the Western Lemanic Region, neighbouring France has three major Casinos (Divonne, Evian, Annemasse), Geneva has one, and approximately 1000 slot machines in restaurants and bars (the points won by the clients are usually exchanged surreptitiously). This brought the estimated offer to 5.25 machines per 1000 inhabitants.

The offer of slot machines in the remainder of French-speaking Switzerland was less due to two reasons: the absence of large cities near casinos (with the exception of Montreux, 200 machines); the other existing casinos were in Saxon, 192 machines, and Courrendlin, 138 machines. The other reason was restrictions due to legislation (for example, in the Canton of Neuchâtel there were practically no slot machines). The estimated offer was therefore of 0.7 machines per 1000 inhabitants.

In the Canton of Tessin, 500 slot machines were offered in the casinos of Lugano, Locarno and Mendrisio in addition to those in neighbouring Italy: Campione and St. Vincent. At the time of the study, another 1200 machines were available in

Table 2 Demographic characteristics of probable + potential pathological gamblers, (n = 75) and non-gamblers (n = 2451), significance of binomial test.

	probable + potential pathological gamblers	non-gamblers	significance of binomial test
sex: males	73%	49%	<0.001
marital status: single	48%	29%	<0.001
married	37%	55%	<0.001
age: under 29	43%	19%	<0.001
29–49	43%	45%	n.s.
50 and over	12%	36%	<0.001
occupational status: salaried	76%	55%	<0.001
independent	9%	9%	n.s.
in training	8%	5%	n.s.
employment: full-time	79%	51%	<0.001
other			n.s.
income: under CHF 4000	13%	29%	0.0016
CHF 4000–6000	42%	31%	0.03
CHF 6001–9000	35%	25%	0.04
over CHF 9000	10%	14%	n.s.

bars and certain gas stations bringing the estimated offer to 9.27 machines per 1000 inhabitants.

Table 1 presents the number of persons interviewed, the numbers per region to be representative of the Swiss population and the weighting factor used to calculate the prevalence rate of gamblers throughout Switzerland. Calculation is based on information furnished by the Swiss Federal Office of Statistics regarding population in 1997 (total: 6 374 451 over age 18).

Results

In order that the regional samples be representative of the Swiss population, we weighted the numbers to represent the actual national distribution of the population. We have also shown in another article [11] that 0.8% (n = 20) of the population were probable pathological gamblers and 2.2% (n = 55) were potential pathological gamblers. This means that in Switzerland the number of probable pathological gambling is between 32 712 and 77 768 (confidence level 95%) and the one of potential pathological gambling between 107 090 and 179 759. The prevalence rate of probable + potential pathological gambling is therefore between 2.07 and 3.87%.

Table 2 compares the characteristics of probable + potential pathological gambling and non-gamblers. The binomial test shows significant differences regarding: sex (higher proportion of males among probable + potential pathological gamblers), marital status (higher proportion of singles among probable + potential pathological gamblers, higher proportion of married among non-gamblers), age (the under 29s are higher among potential + probable pathological gamblers, the over 50s are lower), occupational status (higher percentage of salaried and full-time employed among potential + probable pathological gamblers), and income (probable + potential pathological gamblers have higher incomes).

It should be noted that the variables of nationality and educational/professional levels show no differences between the two groups.

We also observe that only 36% of probable + potential pathological gamblers thought they had a gambling problem, and 0.1% of the non-gamblers did. The difference is significant: $z = 25.1$; $p < 0.0001$.

The study concerns only those who spent more than CHF 5.00 in a day (n = 1942) regardless of the game played. They are divided into 75 probable + potential pathological gamblers and 1867 non-gamblers (weighted figures). The difference to the total number interviewed (2526) shows that 23% did not gamble that amount in a single day, which is a lower figure than observed in other epidemiological studies.

The proportion of those who gamble for money before age 21 was higher among probable + potential pathological gamblers (89%) than among non-gamblers (66%): $z = 4.18$; $p < 0.001$.

Our study allows differentiation into three categories depending on the first game played for money in life. In the first, the percentage of probable + potential pathological gamblers is sig-

Table 3 Prevalence rate of the different categories of gamblers depending on availability. Value corresponding to the correlation coefficient of Pearson and associated probability.

region	number of machines per 1000 inhabitants	probable pathological gamblers %	potential pathological gamblers %	probable + potential pathological gamblers %
remaining French-speaking Switzerland	0.7	0.74	0.74	1.48
Western Lemanic	5.25	1	2.24	3.24
Fribourg	7.03	1.23	1.72	2.95
Tessin	9.27	1.59	2.59	4.18
r of Pearson		0.96	0.89	0.95
associated probability		0.036	0.108 (n.s.)	0.048

nificantly higher than for non-gamblers; card games (jass, poker, tarot, etc.): $z = 3.2$; $p > 0.001$; and precision games (billiards, darts, bowling, etc.): $z = 3.2$; $p < 0.01$. In the second category, the percentage of probable + potential pathological gamblers is significantly lower; lotteries: $z = 3.22$; $p < 0.001$. And finally in the third, we found no significant difference between the two groups; bingo, races, slot machines, dice, casinos and the stock market.

Studying the types of games played during their lifetime (probable pathological gamblers = 20, potential pathological gamblers = 55, non-gamblers = 2448) shows that lottery was the most frequently played (100%, 96%, 78% respectively), followed by casinos (90%, 78%, 58%) and slot machines (80%, 83%, 35%). The games least played were dice (30%, 13%, 5%) and playing the stock market (27%, 13%, 0%). Overall, the average percentage of lifetime gambling for money differs significantly between the three groups. The analysis of Friedman variance is significant: the corresponding $\chi^2 = 17.89 > \chi^2$ at $p\ 0.01 = 9.21$.

Analysis of the frequency of gambling for money over the last 12-month period shows that probable + potential pathological gamblers played much more often than non-gamblers at lottery ($z = 4.44$, $p < 0.01$), cards ($z = 4.05$, $p < 0.1$), slot machines ($z = 6.28$, $p < 0.001$) and precision games ($z = 3.34$, $p < 0.01$). The other gaming categories (bingo, sports, casinos, races, dice and playing the stock market) showed no significant difference between the two groups. In addition, it was noted that weekly lottery was the game most played by the three groups (probable pathological gamblers 50%, potential pathological gamblers 28%, non-gamblers 15%).

According to the CAGE questionnaire, 36% (n = 27) of the potential + probable pathological gamblers and only 8% (n = 191) of the non-gamblers were considered as having a probable alcohol problem; this difference was significant ($\chi^2 = 47.1$, $df = 1$; $p < 0.001$).

As mentioned earlier, the second aim of this study is to verify if there exists a correlation between current prevalence rate of gamblers and gambling availability, the independent variable "availability" differing in the four regions. In table 3, the regions are listed in increasing order as well as the prevalence rate for probable pathological gambling, potential pathological gambling and probable + potential pathological gambling. The last two lines show the correlation coefficients between availability and prevalence rates as well as associated probability.

Considering the four regions where gambling availability was defined, we calculated Pearson correlation coefficients between the different categories of gamblers and availability. This calculation of correlation is based on four points (the four regions), but since each value of the prevalence rate is derived from more than 400 subjects (see table 1) this method of calculation remains valid. The three correlation coefficients are positive and high since they vary between 0.891 for potential pathological gambling and 0.963 for probable pathological gambling. The coefficients concerning probable pathological gambling and probable + potential pathological gambling are statistically significant. This means that there is a positive relationship between availability and prevalence rates of probable pathological gambling and probable + potential pathological gambling.

Discussion

The current prevalence of pathological gambling in Switzerland has recently been shown by our group to be 0.8% for probable pathological

gambling and 2.2% for potential pathological gambling [11], which corresponds to figures similar to those reported by other western countries [6–8]. In this survey, a clear relationship between alcohol abuse and gambling behaviour was found. This correlation has repeatedly been noted in literature regarding studies focusing on treatment populations (i.e. substance abusers or problem gamblers) whereas our study addressed a general population. Males, singles, those under 29 and full-time wage earners were represented significantly more often among the probable and potential pathological gamblers. Results of this study confirm that gambling is widespread among the young with a high percentage of probable + potential pathological gamblers who gambled before the age of 21.

Even though new forms of legalised gambling will not be introduced in Switzerland until 2002, the specificity of cantonal legislations has allowed for the development of different types of gambling in different regions over the last few years. The findings of our study show that in cantons (such as Fribourg and Tessin) and regions (Western Lemanic) where availability is higher, so are probable and potential pathological gamblers. Because of methodological limitations (the number of slot machines per 1000 inhabitants was the only parameter taken into consideration), definite causal relationships cannot firmly be established. However, the evidence suggests that opportunities for gambling affect the frequency of gambling in the studied regions. As for substance abuse, gambling activities, whether legal or illegal, are on the rise. For example, in 1974 in the USA, 61% of Americans spent USD 17,4 billion. In 1992 the amount spent reached USD 330 billion, an increase of 1900% in 18 years! And in 1995 the estimated amount spent on gambling was USD 500 billion. It is also worth noting that the majority of pathological gamblers report starting their habit in adolescence, consequently pathological gambling appears to be twice as high among teenagers as in the general adult population [16].

Although pathological gambling is becoming a major health concern, this psychiatric disorder is frequently overlooked and underestimated in clinical practice. In fact, it may be difficult to identify and diagnose this disorder since many patients present affective symptomatology and/or substance abuse problems, conditions which often cooccur with pathological gambling. Moreover, a majority of gamblers (>90%) presents an Axis II diagnosis with particularly high rates of borderline, histrionic and narcissistic personality disorders which may overshadow symptomatology related to pathological gambling [17]. Symptoms and behaviour specifically related to pathological gambling are often denied or hidden by the gambler. Most of these patients are not aware of their impulse control disorder and/or do not know where to seek help. In our survey for instance, only 27 of probable and potential pathological gamblers (36%) considered themselves as having a gambling problem, and only one sought professional help.

Very few well-controlled treatment studies have been conducted for pathological gamblers. Nevertheless, in terms of general treatment strategy, some data suggest that reductions in gambling may be a more viable goal for pathological gamblers than abstinence [18]. Options for therapy of pathological gamblers include self-help groups, psychodynamic treatments, family therapy, cognitive-behavioural approaches and pharmacotherapy. Even though Gamblers Anonymous is the most popular therapeutic approach in the USA, evidence suggests that these self-help groups may not be very effective since they have a drop-out rate of 70–90%. At best, psychodynamic interventions for pathological gamblers have mixed success rates and more well-defined studies are needed in this area. According to Zion and colleagues [19], there is little evidence that spousal involvement in self-help groups reduces relapse, although some family members might find it helpful. Concerning the cognitive-behavioural approaches, two controlled studies directly compared two treatments: aversive therapy versus imaginal desensitisation in an intensive inpatient setting [20] and cognitive-behavioural manualised treatment versus waiting list control group in a typical outpatient setting [21]. The findings of these two trials show the efficacy of a cognitive-behavioural treatment for pathological gamblers. Although these approaches seem promising, further evaluations and replications in other sites are needed.

There is very little research on the efficacy of pharmacotherapy in pathological gamblers. Several case reports suggest that mood stabilisers which have anti-impulsive effects such a lithium and carbamazepine may be useful in treating gamblers. However, no controlled studies with mood stabilisers have been conducted so far. Serotonin reuptake inhibitors such as clomipramine (Anafranil®) and selective serotonin reuptake inhibitors such as fluvoxamine (Floxyfral®) have been shown to be effective in treating disorders of impulsivity and compulsivity [22, 23]. Consequently, pathological gambling has been studied in a preliminary manner, with some success with these two pharmacological agents. In a single-blind placebo period followed by fluvoxamine (100–200 mg, 8 weeks on

each) of 10 completers, 7 showed a significant reduction in gambling behaviour. This study, however, should be considered with caution due to the non double-blind design, the small sample size and the lack of a long-term follow-up to determine whether treatment response remains stable.

Conclusion

In the years to come, Switzerland will see the development of legal gambling and as a consequence, a probable increase in pathological gambling. The results of our study show that pathological gambling is already high and directly influenced by availability. General knowledge of this problem, detection and treatment are still ill conceived among professionals of mental health (psychiatrists and psychologists) as well as among general practitioners. In addition, to date few initiatives have been undertaken to promote prevention of this debilitating disorder.

In conclusion, developing awareness and furnishing information to mental health specialists as well and the development of specific programmes for prevention and treatment of pathological gambling in Switzerland seem to us a necessity at the dawning of new casinos.

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