An overview of prevalence surveys of problem and pathological gambling in the Nordic countries

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Abstract

Estimates of the prevalence of gambling problems among adults by sampling from whole population registries have been made in Finland, Iceland, Norway, and Sweden. The studies in Norway and Sweden are fairly similar, showing a higher prevalence in Sweden according to the South Oaks Gambling Screen Revised (SOGS-R), and similar prevalence according to the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) screens. The difference is unexpected because Norway has relatively more gambling machines and Norwegian citizens spend more money on gambling. However, the low response rates in Norway may explain the result. Preliminary results from Iceland (2005) with a DSM-IV screen do not differ from those from Norway and Sweden concerning prevalences of pathological gambling, but differ from Norway concerning problem gamblers. However, different DSM-IV screens were used in the three countries, and response rates differed. With these reservations, the past-year prevalence of pathological gambling in Iceland, Norway, and Sweden is about 0.3%, as estimated from DSM-IV screens. Studies of gambling problems among young people have only been performed in Norway.
Key words: prevalence, problem gambling, pathological gambling, Nordic countries

Introduction

The Nordic countries are Denmark, Finland, Iceland, Norway, and Sweden. Iceland is the smallest country, with 0.3 million inhabitants, and Sweden the largest, with 9 million, while the other countries each have about 5 million inhabitants. They have a similar cultural background and similar (except for Finland) language, their political systems are similar, and they are all known as welfare states.

All Nordic countries have broad access to gambling on lotteries, instant win tickets, gambling machines, sports, horse racing, and bingo. From about the turn of the century, the availability of the games has steadily increased through Internet access. However, international casinos are only found in Denmark, Finland, and Sweden, and dog racing has only been available in Sweden for a few years. The gambling market is regulated and most of it is owned by the public sector, although there has been an increase in on-line gambling from international operators.

A large percentage of the adult population in the Nordic countries participates in gambling. For example, prevalence studies have estimated the past-year participation in gambling activities (gambling at least once last year) at 74% in Finland (Ilkas & Turja, 2003), 81% in Norway (Lund & Nordlund, 2003), and 89% in Sweden (Rönnberg et al., 1999). The most popular forms of gambling (according to past-year participation measured in prevalence studies) in Finland are lotteries (66% gambled past year), scratch tickets (40%), and slot machines (38%) (Ilkas & Turja, 2003). In Iceland, the top three are Lotto (56%), slot machines (38%), and scratch tickets (30%) (Ólason, Finnbogadottir, Hauksdottir, & Barudottir, 2003). In Norway, 74% participated in lotteries last year, 21% played slot machines, and 21% played bingo (Lund & Nordlund, 2003). In Sweden, the most popular

forms of gambling are fast lotteries (scratch tickets and Keno) (57%), televised bingo (54%), and national lotteries (46%) (Rönnberg et al., 1999). Lund and Nordlund (2003) mention slot machines, pools, and lotteries as the most popular gambling activities in Denmark.

Prevalence studies of gambling problems with adults have been performed in Finland, Iceland, Norway, and Sweden. In Denmark, a study was performed in 2005, but the results have not yet been published. Furthermore, studies of gambling among young people (between 12 and 19 years of age) have been carried out in Norway (for Iceland, see Ólason, Skarphedinsson, Jonsdottir, Mikaelsson, & Gretarsson in this issue). The studies to be reported here have, with one exception, used internationally known screening instruments.

For research, the Nordic countries have an advantage over most other nations in the availability of comprehensive national registers with data that also facilitate access to telephone numbers. These registers can be used in sampling and in nonresponse analyses. An example is the Swedish study by Rönnberg et al. (1999), where the register of the total population was used for sampling. Of the sample, 89.2% could be reached by telephone and less than 0.5% did not have a correct address. The number of unlisted phone numbers is around 5% in the Nordic countries and these cannot be reached using the national registers.

The aim of this report is to give an overview of these prevalence studies. Many were reported in a Nordic language, and they might also be difficult to access for other reasons.

In the present report, the results of the studies are expressed as relative frequencies of problem gamblers and pathological gamblers. The guiding principles of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV, American Psychiatric Association, 1994) are followed for pathological gambling. In this report, and in accordance with Nordic usage, problem gamblers must meet three or four criteria. Sometimes the term *disordered gambler* is used, comprising problem and pathological gamblers together (Weinstock, Whelan, & Meyers, 2004), and the concept of *at-risk gamblers* is used by Götestam and Johansson (2003). However, the two DSM-IV concepts are not used everywhere outside the Nordic countries, and even in these countries other terms often occur. The transfer of the results from these studies to the present report implies some use of a 'straitjacket'. Therefore, at the end of the overview of the results, terms of some studies that do not coincide with DSM-IV are commented on in Table 1. Another problem is that the comparability of the studies is reduced by the variation in response rates. Furthermore, response rates are calculated in different ways, and so it is necessary to specify how this was done in the different studies.

Estimates of prevalence in the whole adult population

Finland

In 2003, 5,013 randomly selected people aged 15 years and older were interviewed by telephone (Ilkas & Turja, 2003). The researchers administered the South Oaks Gambling Screen, Revised (SOGS-R, Lesieur & Blume, 1987) to 2,485 people who had said that they had taken part in a game at least twice a month during the past year. With a lifetime perspective, 4% and 1.5% of the sample were problem and probable pathological gamblers, respectively. The sample was randomly drawn from telephone registers, stratified by age group, gender, and place of residence to represent the Finnish people over 15 years of age. The response rate was not reported.

Iceland

In 2000, Gallup (IMG-Gallup 2000, in Ólason, Barudottir, & Gretarsson, 2005) conducted a telephone survey using a lifetime version of the NORC DSM-IV screen for gambling problems (NODS) (Gerstein et al., 1999). The sample size was 1,500 people in the age range between 16 and 75 years, randomly drawn from the national register. The response rate was 70.5% (1,057/1,500). The total lifetime prevalence rate for problem gambling was 0.7% (score 3–4), with 0.6% in the pathological group. Pathological gambling was only found among men (1.2%).

Preliminary results from a study conducted in 2005 (Ólason et al., 2005) suggest a higher prevalence. The sample was drawn randomly from the national register and included 5,000 adults with ages ranging from 18 to 70 years. Of the original sample, 192 were considered not eligible respondents (due to death, illness, or residence overseas), resulting in a total sample of 4808. Of eligible respondents, 10.9% could not be reached, 17.6% refused participation, and a further 0.4% terminated the interview; 3,358 respondents completed the interview. The response rate was 69.8% (3,358/4,808). Data collection was mostly performed by phone, although about a hundred people replied by post. Two scales were used to estimate pathological gambling during the last 12 months, the Problem Gambling Severity Index (PGSI) from the Canadian Problem Gambling Index (Ferris & Wynne, 2001), and the 19-item version of the DSM-IV criteria questions (DIGS) (Stinchfield, 2003). The prevalence rate of current problem gamblers according to the PGSI was 1.1% (±0.4%), and of pathological gamblers was 0.5% (±0.2%) according to both instruments. Men were three times more likely to be pathological gamblers than women, and people with low education and young age were more at risk than other groups.

Norway

In 1997, Götestam and Johansson (2003) selected 4,820 telephone numbers using random-digit dialling. The authors consider 607 of these as not being real noncompleters (wrong or unused number, or failing the inclusion criteria), thus giving a sample of 4,213 (4,820 – 607), and real dropouts to be 2,199 (2,806 – 607). That yielded a response rate of 47.8% (2,014/4,213). The telephone interviews were based on the DSM-IV criteria for pathological gambling. The questions concerned current problems, required yes or no responses, and resulted in 0.45% at-risk gamblers and 0.15% pathological gamblers.

Five years later, Lund and Nordlund (2003) used telephone interviews, or postal enquiries if the person was not reachable by phone. They randomly selected 9,529 people from the national register and answers were obtained from 5,235, giving a response rate of 54.9% (5,235/9,529). According to SOGS-R (past-year perspective) 0.4% were problem gamblers and 0.2% probable pathological gamblers (confidence interval for problem and pathological gamblers combined ±0.2%), while with the lifetime perspective the corresponding numbers were 0.7% and 0.3% (combined confidence interval ±0.3%), respectively. With the NODS, 0.4% were problem gamblers and 0.3% pathological gamblers over the past year (combined confidence interval ±0.2%), while the corresponding numbers were 0.8% and 0.6% using the lifetime perspective (combined confidence interval ±0.3%). Disordered gamblers played more games, used more gambling machines, and bet on more sports than people with no gambling problems, and were four times more numerous among males than among females.

Sweden

Kühlhorn et al. (1995) made use of a representative postal enquiry in 1990 with a response rate of around 80%. (The exact response rate and method for calculating it were not reported.) They reached 13,861 people to enquire about the amount of stakes played in the most common games available at that time. After interviews concerning the size of stakes with people who identified themselves as pathological gamblers, the authors found that stakes of 50,000 SEK (approximately 5,500 €) and higher were characteristic for pathological gamblers, while stakes of lower size down to 30,000 SEK (3,300 €) characterised problem gamblers. Using these economic criteria when analysing a representative sub-sample of 5,042 people, 0.4% were problem gamblers and 0.2% probable pathological gamblers after correction for estimated bias in their reports of gambling stakes.

Rönnberg et al. (1999) in 1997–1998 used a total sample of 9,917 randomly selected people, aged 15 to 74. Three separate random samples were drawn from the national register. The first consisted of a sample of 8,500 people aged 15 to 74, stratified by age, gender, and education. The second was a sample of 1,000 people aged 15 to 17, and the third sample was of 500 non-Swedish-born people. Of the original samples, 83 were considered not eligible respondents (due to death or emigration). With telephone interviews, or postal enquiries if the person was not reachable by phone, 7,139 out of 9,917 participated in the study, for a response rate of 71.9% (7,139/9,917). Of the sample, 89% were contacted by phone and 11% by postal questionnaire. The response rates for the methods were 77% and 31%, respectively. The authors found that 1.4% (±0.3%) were problem gamblers and 0.6% (±0.2%) probable pathological gamblers with reference to the past year according to SOGS-R. In the lifetime perspective, the corresponding figures were 2.7% (±0.4%) and 1.2% (±0.25%). According to the Fischer DSM-IV screen (Fisher, 1996), 0.6% (±0.2%) were problem gamblers and 0.3% (±0.1%) severe problem gamblers in the past year. Disordered gambling (pathological and problem gambling) was four times more prevalent among men than among women. Disordered gamblers were generally less than 45 years old, and they were more often born abroad than were people with no gambling problems. They most commonly gambled at casinos, gambling machines, card games, bingo, sports events, horse racing, and fast lotteries, in descending order.

In a follow-up in 1999–2001 of the Rönnberg et al. (1999) material, Jonsson et al. (2003) found that the DSM-IV Fisher screen in 1997 predicted the corresponding score in the year 2000 (r = .52); it also had predictive power concerning comorbidity, but in this case the correlations were only low or moderate. For SOGS-R, the predictions were low or moderate throughout.

Estimates of gambling prevalence among young people

Norway

In 1999, Johansson & Götestam (2003) approached 7,162 randomly selected young people, 12 to 18 years old. It was a two-sample design—of the 3,237 participating in the study, 1,913 were interviewed by phone and 1,324 answered a postal questionnaire. The telephone sample was of 10,000 household phone numbers with adults 37 to 52 years old, for whom a high proportion of children aged 12 to 18 was expected. Of these, 1,913 completed the interview, 2,915 were considered real dropouts, and 5,172 were considered nonreal dropouts (telephone number wrong or out of use, or outside inclusion criteria).

Furthermore, the number of dropouts was also reduced by 632 for people assumed to be 'outside the inclusion criteria'. The response rate was calculated (1,913/(1,913 + 2,915 – 632)) at 46%. The postal sample had wrong addresses for 34 of their representative register sample of 3,000 individuals. This response rate was calculated (1,324/(3,000 – 34)) at 45%. A DSM-IV screen with a past-year perspective using yes and no responses was administered to 805 youth who said that they gambled at least once a week. Of the total sample of 3,237 people, 3.5% were estimated to be problem gamblers and 1.8% pathological gamblers.

Rossow and Hansen (2003) analysed a nationwide questionnaire given to Norwegian students aged 13 to 19 years. Of 12,923 students in the selected schools, 11,928 participated, giving a response rate of 92% (11,928/12,923). They used the Lie/Bet questionnaire (Johnson, Hamer, Nora, Eisenstein, & Engelhart, 1997) with two questions with a lifetime perspective, combined with a chasing question (if they gambled in order to win back their losses). It was estimated that 3.2% of the young people were problem gamblers.

Table 1.

Measures equivalent to problem gambler *and* pathological gambler *in four studies*

Country	*Authors*	*Method*	***'Problem gambler'***	**'Pathological gambler'**
Finland	Ilkas & Turja	SOGS-R	3–4 points	≥ 5 points
Iceland	Ólason, Barudottir, & Gretarsson	PGSI	3–7 points	≥ 8 points
Norway	Rossow & Hansen	Lie/Bet questionnaire and chasing	2 points on Lie/Bet and the answer 'Every time I bet' on chasing	---
Sweden	Kühlhorn et al.	Size of stakes	Stakes of 30,000–49,999 SEK	Stakes of ≥ 50,000 SEK

Note. The table gives the rules used in the present report for transforming the study's concepts to the two standard concepts.

Discussion

First, a comment on the results of studies of adults. The prevalence of gambling was naturally higher using a lifetime perspective (*did you ever…*) than with a past-year perspective (*in the last 12 months…*).

Furthermore, when the results of SOGS-R, which only includes about 40% of the DSM-IV criteria, are compared with the results from screens that include all criteria (Fisher's DSM-IV-based screen, and a screen with questions directly derived from DSM-IV (Götestam & Johansson, 2003)), the prevalence was as a rule twice as high according to SOGS-R than according to the other screens. One exception is NODS, which gave similar results as SOGS-R in Norway (Lund & Nordlund, 2003).

The prevalence of both problem and pathological gambling in Finland, where the SOGS-R with a lifetime perspective was used, was much higher than in the other countries. The difference may be partly due to the screening method and the lifetime perspective. However, the decision to interview people further only if they reported having taken part in a game at least twice a month during the past year excluded those abstaining at the time even though they had gambled earlier. Taking this factor into consideration, the prevalence should be even higher. It is important to check the Finnish results using other methods.

The Norwegian and Swedish studies are fairly similar; the SOGS-R and DSM-IV screens were administered in both countries. According to SOGS-R, the prevalence was lower in Norway than in Sweden, while there was no difference according to the DSM-IV screens. Considering the accessibility of gambling and what is known about expenditures for gambling—e.g., Norway has four times more gambling machines per 1,000 inhabitants than Sweden (Hansen, 2005)—the difference according to the SOGS-R is surprising. The results may be explained by the broader gambling market in Sweden, but of greater importance is probably the higher noncompletion rate with randomly selected cases in Norway; i.e., the response rate there was only 48% to 55%, compared to a response rate of 72% in Sweden. It seems probable that people with gambling problems tend to be lost in studies with poor response rates.

Iceland (2005) can also be compared with Norway (2003) and Sweden (1997–1998) concerning prevalence of gambling as estimated by DSM-IV screens. The preliminary results from Iceland show no significant differences from Norway and Sweden in the current prevalence of adult pathological gambling. The current prevalence of problem gamblers is significantly higher in Iceland than in Norway, but is within the confidence interval compared with Sweden. However, different DSM-IV screens were used in the three countries, and the Swedish study is at the time of this comparison already 7 years old, which makes a comparison with more recent studies problematic.

In summary, it has proved difficult to compare the results of prevalence studies in the different Nordic countries. These problems were discussed at a research symposium in Helsinki in March 2005, and ideas were put forward for improving strategies to render gambling research results more reliable and comparable.

Concerning gambling among young people, prevalence studies have been performed in Norway, but they differed in using different instruments and none were adapted for young people. Fairly high prevalences of problem gamblers and pathological gamblers were reported in these studies; these results should be verified. (For Iceland, see Ólason et al. in this issue)

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