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Revenue Associated With Gambling-Related Harm as a Putative Indicator for Social Responsibility: Results From the Swiss Health Survey

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Abstract

Gambling behaviours represent a significant social and economic cost and an important public health problem. A putative index for monitoring gambling-related harm is a concentration of spending indicator that reports the proportion of gambling revenue derived from problem gambling. Using this indicator, we aimed to provide a first estimate of the proportion of gambling revenue associated with gambling-related harm in Switzerland according to the Swiss Health Survey. Data were obtained from the Swiss Health Survey 2017. The National Opinion Research Centre Diagnostic and Statistical Manual of Mental Disorders – Loss of Control, Lying and Preoccupation (NODS-CLiP) screening tool was used as part of the questionnaire, and the study findings were evaluated to determine the prevalence of gambling-related harm. Self-reported spending on terrestrial and online gambling (including gaming tables, electronic gaming machines, lotteries, sports betting) during the past 12 months was then used to calculate the portion of gambling revenue derived from players experiencing harm. A total of 12,191 respondents were included. Gambling-related harm was reported by 3.10% of our sample, according to NODS-CLiP criteria. The findings showed that although 52% of people experiencing harm spend less than 100 francs per month on gambling, 31.3% of total spending is attributable to gambling-related harm. In addition to pre-existing national prevalence studies, data on spending should be made readily available by gambling operators and regulators, in keeping with their regulatory obligations. The revenue structure, according to gambling type, should also be provided, including data from third-party gambling operators. In an interdisciplinary effort to improve public

health and consumer protection, organized national structural prevention measures should be developed and evaluated.

Keywords: gambling, gambling-related harm, economic cost

Introduction

Although only a minority of players develop gambling problems, the financial, health, and social harms associated with gambling can extend beyond the individual to impact families, local communities, and wider society (Latvala et al., 2019; "Problem Gambling Is a Public Health Concern," 2017). Gambling is increasingly becoming recognized as a public health problem, and, for some time, the authorities have considered gambling as a matter related to public order and the economy. However, it is only recently that countries have been introducing public health elements into their legislation, for reasons much more related to justifying restrictions imposed by state monopolies than to fulfilling obligations to prevent and treat diseases.

In Switzerland, gambling is a significant part of the economy. The country, which has three national languages (German, French, and Italian), is typically regulated by each of its 26 cantons, which are largely autonomous and have separate state apparatuses. Each individual canton is responsible for the implementation of its health services. In the area of problem gambling, some have combined their efforts to provide inter-cantonal prevention programs. Services, in particular treatment services, are regulated at the cantonal level and are therefore heterogeneous. In contrast, the measures imposed on operators to protect people who gamble are regulated by a single inter-cantonal regulatory agency for lotteries and betting across the 26 cantons and by a single federal regulatory agency for casinos.

Historically, gambling was regulated by the 1923 Lottery and Betting Act, which led to a quasi-monopoly of the states over public lotteries. However, in 2001, the Swiss Confederation wished to revise the Lottery and Betting Act to adapt it to society's current values, including the development of ways to tackle gambling dependence. Although the Federal Commission for Casinos regulates casino gambling at a federal level, the 26 cantons preferred to address the matter among themselves and, in January 2005, adopted an inter-cantonal convention. Their approach ensured the introduction of a tax for the prevention of gambling dependence, which is 0.5% of the gross proceeds of lottery and betting in Switzerland. A supervisory body was also established: The Lottery and Betting Commission. From then on, market regulation has been run by two supervisory bodies: the Federal Commission for Casinos at the federal level and The Lottery and Betting Commission at the inter-cantonal level. In 2018, a new federal law was put in place to harmonize this dual regulatory approach (Gespa, 2021).

With 21 venues in its territory, Switzerland has a high density of casinos. In addition, sports betting and lotteries are easily accessible, being sold through kiosks and newsagents, as well as through café/bars run by PMU (a sports betting operator). Within French-speaking Switzerland, electronic gaming machines are available in some 300 cafés and restaurants. Gambling offers are thus extremely varied and easily accessible. This easy accessibility is all the more true with the expansion of online games such as virtual casinos, betting sites, and online poker (Billieux et al., 2016).

In 2017, players spent 690 million francs in casinos; 998 million francs on lotteries, scratch cards, and sports betting; and another 350 million francs on illegal games on the Internet and in neighbouring countries. In the same year, gaming revenues enabled a redistribution and tax collection of around 276 million Swiss francs for casinos and 630 million Swiss francs for lottery and sports betting.

The gambling industry generates economic activity, tax revenue, and recreational benefits for players. Nevertheless, it is well recognized that gambling can also result in diverse negative consequences for certain individuals, as well as those around them ("affected others") and the broader community. Problem gambling thus represents a significant social cost (Collins & Lapsley, 2003; Jeanrenaud et al., 2012).

In Switzerland, people with problem gambling appear to have a particular interest in casino gambling and electronic lotteries. This is despite the legal obligation for operators to have a social responsibility program that is subject to strict monitoring under threat of substantial fines. Players' use of online gambling sites is certainly not to be overlooked, but data are currently lacking that would confirm the extent to which they are used. Although quality support or therapy services are available for problem gambling, in reality the uptake is low, and even when services are used, findings suggest that, within Switzerland, it takes an average of 5 to 6 years from the onset of the problem to effective management (Commission fédérale des maisons de jeu, 2009).

People who problem gamble enter Swiss treatment services around 5 years after the onset of gambling problems, and they are often affected by significant financial, social, and health consequences. Financial problems (loans and unpaid debts) have been identified as the primary cause of an individual seeking help (Billieux et al., 2016).

An economic study estimates that excessive gambling costs the community between 551 and 648 million Swiss francs (606 to 712 million US dollars) annually in the form of additional healthcare costs, unrealized production, and health-related loss of quality of life. The social cost per pathological gambler per year is between 15,000 and 17,000 Swiss francs (Jeanrenaud et al., 2015).

This important economic burden and negative social consequence for people who gamble and for society has led to several studies better assessing this problem, in particular through the use of proxy indicators such as income derived from gambling

or gross gambling revenue (Costes et al., 2016). However, use of monetary indicators in research has led to widely varying estimations, most likely due to the different hypotheses and underlying methodology adopted in different studies. Although attempts to quantify social impacts through such monetary indicators provide important insights into the economic burden of problem gambling, these attempts are also felt, by some, to be an ineffective metric (Williams, Rehm et Stevens, 2011). More specifically, such indicators do not enable global evaluation of the range of potential social impacts. Overall, the diverse negative social consequences are difficult to objectively evaluate, yet have an important impact as economic consequences of problem gambling.

As an alternative approach to using economic indicators, international studies have demonstrated that policy makers and gambling operators can effectively use an indicator of the concentration of spending (the proportion of gambling revenue derived from gambling-related harm) to measure social responsibility efforts, whether these efforts are voluntary or imposed through regulations (Fiedler, 2013).

The aim of this study was to provide a first estimate of the concentration of spending in Switzerland, using data from the Swiss Health Survey (SHS).

Method

Study Population and Data

Data analysed for this study was obtained from the SHS, conducted in 2017 by the Swiss Federal Statistical Office (l'Office Fédéral de la Statistique; OFS). This cross-sectional, population-based nationwide survey focuses on health status, healthcare use, lifestyle, and demographic factors and has been carried out every 5 years since 1992 (OFS, 2019).

The SHS has three main objectives: (1) to determine the health status of the population, the consequences of ill health, and the use of healthcare and insurance services; (2) to observe, through periodic surveys, the evolution of the health status of the population, health behaviour, and the use of healthcare services over time; and (3) to identify the effects of healthcare policy measures and changes in health condition trends (Office Fédéral de la Santé Publique, 2019a).

It uses a stratified random sampling technique based on registries of inhabitants, with the cantons of Switzerland as strata. Of an initial sample of 43,759 individuals, 22,134 people aged 15 years or older and living in a private household agreed to complete the 2017 SHS (participation rate 50.6%). They first participated in a computer-assisted telephone interview. A written questionnaire was then administered (paper or online), with the consent of the participants (n = 18,832). The written questionnaire was an extension of the basic telephone interview, with the aim of gathering more detailed information on certain topics (dental care, clinical depression, etc.). The representativeness of the Swiss population was ensured with the use

of multistage probability sampling and appropriate weighting factors provided by the OFS. The sampling weights provided by the OFS were used to compare the permanent Swiss population (2017) for factors such as sex, age, geographic region, and nationality (Swiss vs. other; Office Fédéral de la Santé Publique, 2019b).

Measures

Gambling-Related Harm: NODS-CLiP

To determine whether participants had gambled in the past 12 months and thus met our inclusion criteria, they were asked to answer the following question: "For the following games (lottery, casino gambling, or other games of chance), please indicate which you have played in the past 12 months." Only those who reported having played during this period were included in the study.

During the 2017 SHS, respondents who had gambled once or more during their lifetime were asked to complete a French version of the National Opinion Research Centre Diagnostic and Statistical Manual of Mental Disorders – Loss of Control, Lying and Preoccupation (NODS-CLiP; OFS, 2017), a three-item screening tool to identify problem gambling. The NODS-CLiP has been reported to have high sensitivity (0.94–0.99) and specificity (0.88–0.95) in the detection of problem gambling (Toce-Gerstein et al., 2009). However, elsewhere it has been recognized that it identifies a high number of false positive cases for problem gambling (Dowling et al., 2018). In order to avoid estimating inflated levels of problem gambling in the present study, we applied the NODS-CLiP criteria to identify the broader category of gambling-related harm. As previous research has taken the endorsement of three or more items on this screen to be an indicator of problem gambling (Cowlishaw et al., 2018; Volberg et al., 2011), in the present study, we thus considered these criteria to identify gambling-related harm.

Spending

Previous studies have identified that participants report on their aggregate gambling expenditure with reasonable accuracy, in particular when "net wins" are excluded from their estimations (Williams, Volberg, Stevens, Williams & Arthur, 2017; Williams & Wood, 2007). In keeping with this, we asked respondents to report their spending on gambling activities by answering the question, "Over the past 12 months, how much did you spend on average per month on gambling?" Participants were allowed to mark only one answer on a scale of answers corresponding to seven choices, ranging from less than 10 francs per month to 10,000 francs or more per month.

Indicators

We identified two key indicators: (1) the prevalence of gambling-related harm and (2) the share of revenue associated with gambling-related harm. The prevalence of gambling-related harm is operationalized as the percentage of people who are

identified as experiencing harm by the NODS-CLiP. The share of revenue derived from gambling-related harm is the percentage value of gross gaming revenue (stakes minus winnings) that is associated with such harm. To measure the share of revenue associated with harm, we summed the spending of those players who met the criteria for gambling-related harm and divided the total by the expenses of all gamblers. Of note is that gambling spending was measured by using questions from an ordinal scale with predetermined answers, instead of open answers, an approach that may well have led to the highest spenders underestimating their spending and therefore an underestimation of the revenue portion associated with gambling-related harm.

Statistical Analysis

Statistical analyses were performed by using STATA 14. Descriptive statistics and frequencies were analysed for all variables.

Results

Of the 18,832 people who responded to the SHS, we used complete data for 12,192 people. Inclusion criteria for the data in the present study included all questions from the NODS-CLiP tool having been answered and there being no missing data on gambling issues, types of gambling, and spending variables.

Description of the Sample

A full description of the socio-demographic data for our sample is presented in Table 1. Among the 12,192 respondents, 51.8% were women. The age distribution was relatively balanced between the different age categories that we defined, although the under-30 age group represented almost 25% of the entire sample. The overwhelming majority of participants were Swiss citizens (83%). More than half were married or in a registered partnership. Only 14.4% of the respondents reported having low levels of social support. Finally, 75% were urban dwellers living in large or medium-sized cities.

Prevalence of Gambling-Related Harm

Among our sample, 71% had gambled at least once in their lifetime and almost 60% had gambled at least once in the past 12 months. In terms of the prevalence for the last 12 months from the responses to the NODS-CLiP tool, we found that 378 people (3.1%) were categorized as having experienced gambling-related harm (Table 2).

Figure 1 shows the distribution of expenditures according to the gambling category defined by using the NODS-CLiP tool. Almost 76% of people betting more than 1,000 Swiss francs (1,027 US dollars) per month were categorized as experiencing gambling-related harm.

Table 1
Socio-Demographic Characteristics of the Sample

Sample characteristic	n	%
Total	12,192	100
Gender		
Male	5,852	48.2
Female	6,340	51.8
Age (years)		
<30	3,048	25.3
31-40	2,073	17.2
41-50	2,316	18.7
50-60	2,073	16.8
60-70	1.463	11.8
>70	1,219	10.2
Nationality		
Swiss	10,119	83.2
Non-Swiss	2,073	16.8
Educational level		
High	5,608	46.2
Middle	6,340	52.6
Low	244	2.2
Marital status		
Married/registered partnership	6,376	52.3
Single, divorced/dissolved partnership, separate, widowed	5,816	47.7
Social support		
High	5,121	41.9
Middle	5,243	43.7
Low	1,829	14.4
Area of residence		
Urban	9,022	74.3
Rural	3,170	25.7
Linguistic regions		
German	7,234	59.3
French	4,145	34
Italian	813	6.7

Table 2
Prevalence of Gambling-Related Harm (Last 12 Months)

Presence / absence of gambling-related harm	N	%
No gambling-related harm	11,814	96.90
Gambling-related harm	378	3.10

Note. N = 12,192.

Figure 1
Distribution of Spending According to Gambling Type.

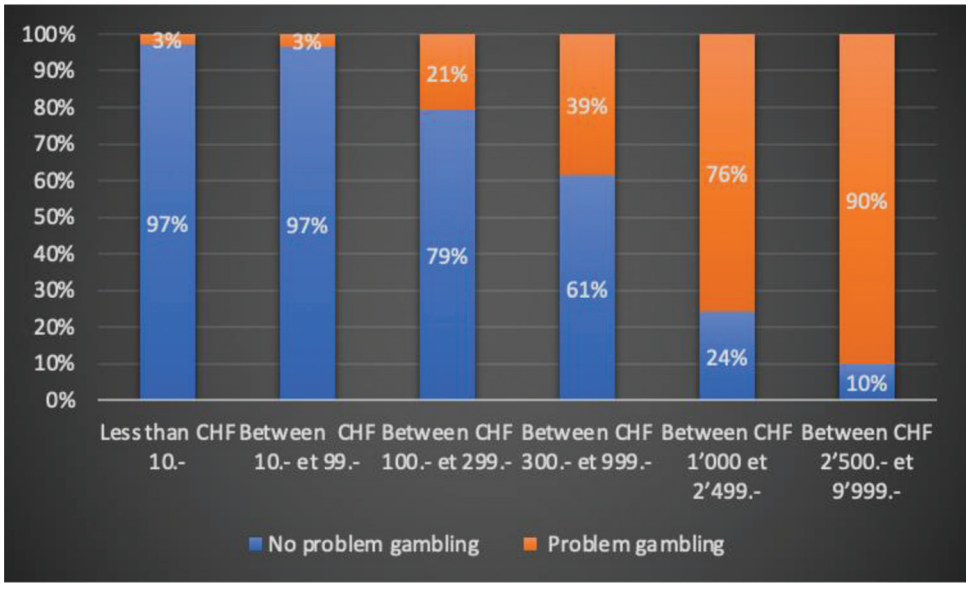

Table 3
Distribution of Players and Spending According to Gambling Type

	Gambling type	
	No gambling-related harm	Gambling-related harm
Proportion of players by gambling type (%)	94.7	5.3
Spending by gambling type (%)	68.7	31.3

Share of Revenue Associated With Gambling-Related Harm

Table 3 shows the distribution, among people who gambled, of the number of players and spending according to gambling type (problematic or not). In Switzerland, in 2017, for those who reported having gambled over the past year, 5.3% of participants could be classified as experiencing gambling-related harm. The expenditure attributed to problem gambling was 31.3% of participants' total expenditure on gambling.

Discussion

To our knowledge, this study is the first to analyse the share of revenue associated with gambling-related harm for a large Swiss sample. The main results show that a significant portion of gambling revenue is derived from people experiencing gambling-related harm. The findings are in keeping with another Swiss study, which reported that nearly 40% of people who gamble spend more than 100 francs (103 US dollars)

per month, in comparison to a minority (11%) who spend more than 1,000 francs (1,023 US dollars) per month. Among problem gamblers, the portion of household income earmarked for gambling exceeds 5% in 40% of cases and even 10% in one of four cases. Of this subpopulation, 5% spend 20% of their household income on gambling (Commission fédérale des maisons de jeu, 2009; Jeanrenaud et al., 2012, 2015). Previous studies have also shown that a small group of players account for a large part of the gambling market's revenue. Moreover, problem gambling represents 17% of total gambling expenditures in France, 20% in Quebec, and 28% in Germany (Fiedler et al., 2019). Another study estimates that approximately 139,000 people gamble problematically in Germany, which represents 27.24 million euros per year of additional spending in the German health sector (Effertz et al., 2018). Other studies in Finland indicate the same phenomenon (Castren et al., 2018; Salonen et al., 2018). In Canada, it is estimated that 23% of gambling revenue is attributable to problem gambling, with as much as 36% in the province of Ontario (Williams & Wood, 2007). Finally, in Australia, several studies estimate the proportion of revenue attributable to problem gambling at between 29% and 37% (Armstrong et al., 2018; Markham et al., 2014). These studies demonstrate that excess spending by people experiencing gambling-related harm creates social costs in the form of lost productivity, treatment costs, and reduced quality of life.

In our sample, 3.1% of participants (including gamblers and non-gamblers) reported gambling-related harm, indicating that gambling-related problems are relatively rare within the Swiss population. However, even if these problems affect only a small proportion of players, the impact is significant and persists over time. In 2012, another national study that used the same methodology and a similar population sample showed a slightly higher prevalence for gambling problems (OFS, 2015). It is estimated that the prevalence of problem gambling is between 2.8% and 5.5% of the Swiss population and that 0.8% to 2.2% of the population can be categorized as pathological gamblers (Bondolfi et al., 2008).

Difficulties in comparing international findings, due to different methodological procedures, instruments, cut-offs, and time frames, have been highlighted (Calado & Griffiths, 2016). Although they acknowledged this caveat, Calado and Griffiths (2016) conducted a systematic review of all adult gambling prevalence studies published between 2000 and 2015, including 69 studies from around the world. Their findings indicate wide variations in past-year problem gambling rates across different countries, both internationally (0.12% to 5.8%) and across Europe (0.12% to 3.4%). The present study indicates that gambling-related harm in Switzerland also falls within these parameters.

Limitations of the Study

This study is subject to the same limitations as many other large-scale epidemiological surveys, namely, that the tool used to measure spending due to problem gambling was not validated, as currently there is no scientific consensus on a validated, standardized tool for this purpose. Furthermore, as the survey data were

preselected, they did not allow us to consider additional information potentially useful to our calculations, such as reports of "wins" alongside gambling expenditure or spending per individual gambling type (Williams et al., 2017).

Gambling behaviours were also self-reported and could be subject to recall bias or underreporting because of social stigma. Another important limitation was the SHS's cross-sectional design, which makes it impossible to analyse any temporal association between socio-demographic characteristics and problem gambling. A longitudinal analysis (cohort design study, for example) is needed to observe the evolution of problem gambling and the epidemiological association with different factors (cultural, socio-demographic, behavioural, etc.). Analysis of temporal changes through repeated gambling measures may enable a more robust assessment of the relationship between problem gambling and behavioural characteristics.

In addition, the selection of the NODS-CLiP to identify different gambling behaviour is problematic due to its inherent weaknesses.[1] Although we adjusted the terminology to avoid the false inclusion of problem gambling, we also recognize that the tool has a low sensitivity for identifying subclinical gambling problems. The prevalence of gambling-related harm in our sample could therefore be an underestimation.

Finally, because of the small number of participants identified as experiencing gambling-related harm according to the NODS-CLiP tool, it was not possible to compare the spending of this group by each type of game or linguistic region. This would have been a useful insight, given that other studies have shown large differences between the bets made by players in French-speaking and German-speaking Switzerland.

Conclusion

As the risks in gambling appear to be largely underestimated, it is important to provide more information about gambling and the problem gambling burden for the general population. The portion of gambling revenue associated with gambling-related harm appears to be an important indicator for regulators and policy stakeholders for evaluating structural prevention efforts.

Even though a small proportion of people who gamble have experienced gambling-related harm, the present study confirms that this subgroup is the one that does the most spending. They are also those who frequently have the most problems with

[1]The NODS-CLiP relies on three brief items, which are administered in only 1 min to screen for gambling problems. It is reported to demonstrate excellent sensitivity and specificity for NODS constructs and has been recognized as useful in a range of clinical settings (Toce-Gerstein et al., 2009; Volberg et al., 2011). Although it has been found to adequately detect problem and moderate-risk gambling, it does not reliably detect low-risk gambling (Dowling et al., 2018). Use of this generally accepted screening tool in the present study will enable comparisons with research from other jurisdictions.

their family, friends, or work because of their relationship to gambling. Organized structural and national prevention measures, as well as measures to reduce risky or problematic gambling behaviour, should therefore focus on these groups of people.

The proportion of gambling revenue generated by people experiencing gambling-related harm according to type of gambling, as well as the revenue structures that must be provided by operators, should be made accessible, including information related to different types of games. Organized structural and national prevention measures must be developed through an interdisciplinary effort to improve public health and consumer protection. Finally, studies that use this spending concentration indicator should also be conducted with other subpopulations, such as young people and older men, in order to identify their contribution to gambling revenue and focalize prevention efforts.

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