

Cheating and stealing to finance gambling: analysis of screening data from a problem gambling self-help program

Kalle Lind¹ & Juha Kääriäinen²

¹ Faculty of Social Sciences, University of Tampere, Tampere, Finland

² Institute of Criminology and Legal Policy, University of Helsinki, Helsinki, Finland

Abstract

Previous studies have suggested strongly that early engagement in gambling anticipates severe gambling problems. Problem gambling and gambling addiction are linked to financial difficulties, depression and weakened life control. One social consequence of excessive gambling is property crime. In this study, we analyze screening data ($N = 1573$) from a problem gambling self-help program to locate predictors of such criminal behaviour. We applied logistic regression to determine the relationship between problem gambling and both reported cheating and stealing. Our objective was to create an empirically-based model of the different risk factors related to such criminogenic gambling. Our models suggest that self-reported gambling-related cheating and stealing is related to young age, low education, low income, a high rate of depression, a long history of problem gambling, and negative subjective perception of one's financial situation.

Keywords: problem gambling, crime, logistic regression

Résumé

Des études antérieures ont confirmé qu'une participation précoce à des jeux d'argent prédit de graves problèmes de jeu. Le jeu compulsif et la dépendance au jeu sont liés aux difficultés financières, à la dépression et à un faible contrôle sur la vie. Une conséquence sociale du jeu excessif est la criminalité contre les biens. Dans cette étude, nous analysons les données de dépistage ($N = 1573$) d'un programme d'auto-assistance sur le jeu problématique pour trouver des prédicteurs d'un tel comportement criminel. Nous avons appliqué la régression logistique pour déterminer la relation entre le jeu problématique et la tricherie et le vol rapportés. Notre objectif était de créer un modèle empirique des différents facteurs de risque liés à ces jeux criminogènes. Nos modèles suggèrent que la tricherie et le vol autodéclarés attribuables au jeu sont liés au jeune âge, à un faible niveau de scolarité, à un faible revenu, à un taux élevé de dépression,

à une longue histoire de jeu compulsif et à une perception subjective négative de sa situation financière.

Introduction

According to Henry Lesieur's (1977) classic theoretical model of the chase, a gambler enjoys progressively fewer legal options to obtain gambling money as the gambling problem deepens. Five common themes surround the decision to turn to crime: (1) opportunity, (2) external agents of social control, (3) personal beliefs and justifications, (4) progressive depletion of viable available options, and (5) threats. Several empirical studies have indeed demonstrated that problem gambling is a risk factor for criminal offending (e.g., Blaszczynski & McConaghy, 1994; Meyer & Stadler, 1999; Turner, Preston, Saunders, McAvoy, & Jain, 2009). According to a review study by Williams, Royston, and Hagen (2005), various studies indicate gambling problems to be more prevalent among prison populations than among the general population. Research on problem gambling support groups also confirms that a large portion of attendees have committed an illegal act—typically, property crimes—because of their gambling problem.

A high frequency of criminal activity seems to be significantly linked to experiencing more gambling problems (May-Chahal, Humphreys, Clifton, Francis, & Reith, 2016). Problem gambling also increases the likelihood of reoffending on the part of the gambler (Lloyd et al., 2014). A recent study (May-Chahal et al., 2016) on prisoners in England and Scotland found that high-rate offending was connected to loss-chasing behaviour, suggesting in turn that impulse control might function as a moderating factor between problem gambling and crime (see also Blaszczynski & Steel, 1998; Folino & Abait, 2009; Mishra, Lalumière, & Williams, 2016). Chasing behaviour is also one essential component of the integrated model of problem gambling introduced by Blaszczynski & Nower (2002), and of their classification of three problem gambling sub-types: (1) behaviourally conditioned, (2) antisocial, and (3) emotionally vulnerable. Greater impulsiveness is linked to the severity of gambling problems (Alessi & Petry, 2003; Vitaro, Arseneault, & Tremblay, 1999). Problem gamblers with antisocial and impulsive tendencies are also more likely to participate in other problematic behaviours, including crime (Bellringer et al., 2009; Blaszczynski & Steel, 1998; Folino & Abait, 2009; Mishra et al., 2016; Mishra et al., 2011). Similarly, criminology has linked crime to a deficiency of impulse control (e.g., Gottfredson and Hirschi, 1990). At the population level, a survey study conducted in Denmark (Laursen, Plauborg, Ekholm, Larsen, & Juel, 2016) indicated that problem gamblers were more likely to maintain a criminal record, not only for property crimes, but also violence and drug-related offences. Among students, it was more common for problem gamblers to be engaged in various criminal activities, as well as to endure increased substance abuse and mental health issues (Cook et al., 2015;

also Griffiths, Wardle, Orford, Sproston, & Erens, 2009; Gupta & Derevensky, 1998; Hardoon et al., 2004; Hardoon, Gupta, & Derevensky, 2004; Vitaro, Brendgen, Ladouceur, Tremblay, & 2001). A relatively high comorbidity of gambling problems and mental health issues has also been determined in adult populations (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998; Lorains, Cowlshaw, & Thomas, 2011). Various studies (e. g., Cheung, 2011; Mishra et al., 2016; Potenza et al., 2001) have also discovered that many different forms of antisocial and risk-taking behaviours, including problem gambling, crime and substance use, seem to co-occur. Martin, Macdonald, and Ishiguro (2013) indicated that, among those gamblers in treatment for gambling problems or cocaine addiction, the prevalence of criminal convictions was higher than that among those persons in treatment for tobacco addiction. Social support and full-time employment were found to be crucial protective factors against criminal conviction. Gambling is money-consuming; thus, problem gamblers are more likely to commit those crimes commonly motivated by income generation (Blaszczynski, McConaghy, & Frankova, 1989; Brown, 1987; Laursen et al. 2016; Lesieur, 1977; Turner et al. 2009). Importantly, these crimes are most often committed near the home (McKay & Lesieur, 2005) or at the workplace (Crofts 2003).

From the sociological theories of anomie (Merton, 1938) to criminological strain-theories (Agnew, 1992), poverty and low socio-economic status seem to explain adequately those factors related to offending. Although the relationship between socio-economic factors and crime is not as strong (Agnew et al., 2008) as suggested by leading theoretical approaches, some empirical support for such theories does nevertheless exist. Low socio-economic status consists of various different elements, such as financial position, employment status and educational background, all of which contribute to the risk of delinquency. Examining the association between socio-economic status and different types of crime (violent offences, property offences and driving while intoxicated), Aaltonen, Kivivuori, and Martikainen (2011) found that long-term unemployment and having only a basic education were the strongest predictors of offending. Low socio-economic status correlated with all types of crime, but most notably, socio-economic factors seem to predict property crime. Nordic studies (e.g., Christoffersen, Sothill, & Francis, 2008; Riala et al., 2003) have found low educational performance to predict drunk-driving. Improving educational attainment among the young can lower their risk of marginalization and social exclusion. In fact, education in general seems to be one of the most efficient techniques of crime prevention. (Aaltonen et al., 2011).

Aristotle once stated that [p]overty “is the parent of revolution and crime” (ca. 330 B.C./1920, p. 70). However, causal relationships between poverty and crime are still extremely controversial. Criminological strain theories suggest that crime is a reaction to an imbalance between socially-formed goals and unequal opportunities to achieve these: cultural expectations of affluence cannot be met by legal means. This situation is often expressed in financial terms. By analyzing survey data, Salmi and Kivivuori (2005) concluded that financial problems in the family indeed correlated with

delinquency in Finland. According to Agnew et al. (2008), however, only multiple financial problems operating together in fact elevate the risk of offending.

At some level, individual history seems to define the future: according to various criminological studies, criminal careers start at a young age (e.g., Macleod, Grove, & Farrington, 2012; Soothill, Fitzpatrick, & Francis, 2009). Also, early involvement in gambling predicts gambling problems in later life (Hing et al., 2014), and early engagement in criminal activity increases the risk of committing another crime (e.g., Mulder et al., 2011). Regarding the problem of gambling-related crime, gender has shown to be a good predictor of behaviour: males are more likely to commit a problem gambling-related offence (Potenza et al., 2001). In general, men, relative to women, are over-represented in both crime and problem gambling statistics. Men gamble more than women, especially during adolescence (Blinn-Pike, Worthy, & Jonkman, 2010). Several studies have found a high prevalence of problem gambling among youth (e.g., Griffiths et al., 2009; Gupta & Derevensky, 1998). Because of these two factors, the impulsiveness of young men is often used as an explanation for such behaviour. However, according to the age-crime curve (e.g., Loeber & Farrington, 2014), crimes seem to peak in adolescence and early adulthood, independent from other social factors. It must be noted that the significance of age and gender seems to vary according to different types of crime and different forms of gambling.

In line with these findings regarding criminal careers, the earlier gambling begins, the greater the risk of developing a gambling problem would appear (e.g., Hing, Breen, Gordon, & Russell, 2014). The onset of gambling seems to be related to impulsiveness, but only together with low socio-economic status (Auger et al., 2010). Marital status also seems to be linked to both gambling and crime, as single persons are more likely to commit a gambling-related crime (Potenza et al., 2001). In general, strong social bonds through marriage or work seem to buffer the delinquency-related risk factors of childhood (Martin et al., 2013; Sampson & Laub, 1990), for example.

However, not all problem gamblers turn to illegal acts. In this paper, our purpose is to discover the conditions, individual features, and background factors that are connected to self-reported cheating and stealing to finance gambling. These possible underlying factors can be related to gambling behaviour or more generally to social relationships. This research aims to outline the profile and social situation of a criminogenic gambler. The analyses presented here are exploratory only. Our findings can be later compared to the results of other research designs. Recognizing those populations that are at risk can help preventative measures focus more effectively, and support practices can be further developed.

Our main hypotheses arise from the previous research mentioned above. First, we test whether those gamblers who have a longer history of gambling problems are also more likely to report having cheated or stolen. In addition, we assume that starting to gamble at an early age is connected to self-reported cheating and stealing. Thus our two hypotheses may be phrased as: (1) *those gamblers with a longer history*

of problem gambling are more likely to report having cheated or stolen because of problem gambling, and (2) starting to gamble at an early age is connected to self-reported problem gambling-related cheating or stealing.

Method

To assess the association between problem gambling and crime, we need to examine several different types of data. This argument can be validated by referring to the crime itself: the majority of all crimes remain unreported to the authorities. By studying official records, we can shed light on only certain aspects of this phenomenon. For example, in Sweden, it is estimated that 10% of problem gamblers attending support groups have embezzled money from their workplace (Binde, 2016a, 2016b). Furthermore, only a small portion of problem gambling-related cases—mostly, fraud and embezzlement—are reported to the police (McKay & Lesieur, 2005; Productivity Commission, 1999). Different methodological approaches are essential to generate more detailed information on problem gambling and crime, means varying from data collection at problem gamblers' treatment programs to examining official court documents. This approach includes both qualitative and quantitative designs. As an example of such multidisciplinary method, criminogenic gambling has been studied using population scale surveys (Dickerson, Baron, Hong, & Cottrell, 1996; Laursen et al. 2016), prison studies (Abbott, McKenna, & Giles, 2000; Abbott, McKenna, & Giles, 2005; McEvoy & Spirgen, 2012; Zurhold, Verthein, & Kalke, 2014), and studies conducted at problem gambling support groups (Blaszczynski et al., 1989; Folino & Abait, 2009; Potenza et al., 2001).

In this study, we utilize screening data from the Finnish “Time to Fold” problem gambling self-help therapy program, which is an Internet- and a telephone-based therapy program directed at problem gamblers. The question of cheating and stealing is included in the screening data of the program, allowing us to estimate the criminogenic factors of gambling in Finland. As a measure, this approach is not crime specific, but cheating and stealing money covers gambling-related property crime in general.

“Time to Fold” is an Internet- and telephone-based therapy program for problem gamblers. Lasting eight weeks, it includes web-based exercises and phone sessions with a therapist, and utilizes a cognitive-behavioural approach. Each client spends five hours in total with the therapist. The program also provides peer support through its online forum. In this study, we examine data from a survey of the applicants conducted during the screening phase, when applying for the program. The program began in 2007, and by the start of 2016, had served almost 1,600 problem gamblers. In our study, we described and elaborated upon the data from this screening phase.

This material permitted us to compare the differences between those gamblers who had reportedly committed a crime (i.e., stealing or cheating) and those gamblers who had not. Our objective was to identify the variables linked to each group, those respondents who answer yes and those respondents who answer no. The variables

were related to gambling behaviour, financial difficulties or experienced social consequences.

The screening and pre-treatment questionnaires covered themes such as the games played, the gambling-related beliefs held and the socio-economic costs of gambling. We utilized screening data collected ($N = 1573$) from the web-based therapy service. The questionnaire contained 91 different topics, including certain topics from the NORC DSM (NODS) screen for problem gambling (17 questions, scale: yes [1], no [0]). Our dependent variable was part of this NODS gambling screening, under the theme of current problems in gambling. The screening included a total of 17 different questions (regarding both the previous 12 months and the previous 2 months) and was originally developed for population surveys. Not all problem gambling screenings take criminal behaviour into account. However, the NODS questions are based on DSM-4-diagnostic criteria, which still include criminal behaviour—unlike the renewed DSM-5 criteria. Thus, the question that formed our dependent variable was: “*During the last year, have you stolen money from or cheated your family members or other persons in order to finance your gambling?*”

In accordance with the DSM-4 criteria, this question was preceded by questions about lying to family members and friends about their gambling and whether or not this had happened more than three times during the last year. The total score of answers varied from 0 to 10 (over 5 points = gambling addiction, 3–4 points = gambling problem, 1–2 = risk gambling). In clinical evaluations, the NODS scale has proven sensitive and reliable (Wickwire et al., 2008; Hodgins, 2004)). As gambling behaviour is not a fixed feature of the individual or a static medical state, the NODS screen surveys gambling behaviour during both the previous year and the previous two months. It should be noted that typically, only 10% of problem gamblers seek help. Research has also indicated that help-seeking starts rather late, after 7–9 years of gambling problems.

We used SPSS to examine our dichotomous dependent variable in relation to other variables. As the dependent variable can only be one of two values, 1 (yes) or 0 (no), logistic regression proved useful. Previous studies have analyzed similar data from problem gambling treatment programs using logistic regression (e.g., Potenza et al., 2001).

A limitation of this current study was our second-hand data. The questionnaire was not actually designed to assess criminality, but was rather a diagnostic tool for practitioners. It should be noted that the questionnaire was not detailed regarding the criminal event or even specify whether the incident was reported as a crime to the police. Neither did it provide any information on the victim. Nevertheless, when reaching the dark figure of crime, the data allowed us to take one important step forward. In addition, our data obviously did not represent the entire problem gambling population, but only a certain subgroup of problem gamblers who applied for this specific treatment program. It is possible, for example, that those gamblers who are not able to search for help in fact form a substantially different

socio-economical group: such a group would not be in the scope of this study. A problem gambler who is acting searching for help may have more resources (social, financial and psychological) for recognizing and admit a gambling problem and for eventually obtaining to treatment. Thus, in light of these limitations, the current study outlined the profile of a criminogenic problem gambler who had applied for treatment.

Results

The descriptive statistics of the data regarding our independent variables is presented in Table 1. Of the respondents who reported their gender, 67.2% identified as male and 32.8% female. On average, the age of the respondents was 34.83 ($SD = 11,640$). Secondary education (45.9%) was the most common educational background among the respondents. The majority (65.4%) of the respondents were employed, and their typical annual income was 25 000–34 999 Euros per year (25.6%). The applicants had started gambling at a rather young age ($M = 23.53$ years), and before applying for the program, had suffered from gambling problems for an average of 8.2 years. During the previous year, 37.6% of the respondents had stolen money or cheated to finance their gambling. We will now move on to explore further this group: who those persons are, and how they differ from those respondents who did not report having cheated or stolen. Table 2 presents the results of the logistic regression.

First we applied logistic regression to the background variables (Model 1, Nagelkerke R^2 : 0,095) to find the basic variables linked to cheating or stealing. By testing different combinations, we found that younger age, lower income and lower education were linked to reporting gambling-related cheating and stealing. Rather surprisingly, gender or household dwelling unit were not associated with reporting cheating or stealing. Gender is already related to succumbing to gambling in the first place, a fact which could in turn explain the lack of a gender effect here.

The second phase (Model 2, Nagelkerke R^2 : 0,120) of our analysis brought into our model the (1) starting age of gambling and the (2) duration of problem gambling. As already stated, according to previous studies, an early starting age predicts gambling problems. But does it also predict problem gambling-related cheating or stealing? Contrary to our hypothesis, the starting age of gambling *is not* a statistically significant predictor of self-reported problem gambling-related cheating or stealing. Instead, the duration of gambling problems was associated with self-reported gambling-related cheating or stealing: the shorter the period the subject suffered from gambling problems, the less likely he or she self-reported cheating or stealing. An interesting finding was that different game types were not significant predictors of reporting problem gambling-related cheating or stealing.

The data presented here do not support a notable relationship between gambling problems, illegal actions and other addictive behaviours. First and foremost, the applicants had *gambling problems*—they did not also report significant problems

Table 1
Descriptive Statistics for Dependent and Independent Variables.

	Self-reported cheating and stealing to finance gambling			
	No	Yes	Total	Missing (N)
Age (mean)	36.23 (<i>SD</i> 12.227)	32.52 (<i>SD</i> 10.198)		18
MADRS score (mean)	18.11 (<i>SD</i> 9.021)	22.15 (<i>SD</i> 9.391)		52
Gender				20
Male <i>N</i> (%)	641 (61.5%)	402 (38.5%)	1043 (67.2%)	
Female <i>N</i> (%)	327 (64.1%)	183 (35.9%)	510 (32.8%)	
Education				16
Lower primary education	19 (61.3%)	12 (38.7%)	31 (2%)	
Higher primary education	104 (46.6%)	119 (53.4%)	223 (14.3%)	
Secondary education	443 (62%)	271 (38%)	714 (45.9%)	
Higher education	120 (67%)	59 (33%)	179 (11.5%)	
Bachelor's degree	177 (64.6%)	97 (35.4%)	274 (17.6%)	
Master's degree or higher	104 (76.5%)	32 (23.50%)	136 (8.7%)	
Annual Income				20
Do not want to answer	39 (63.9%)	22 (36.1%)	61 (3.9%)	
Under 6 500 €/year	55 (47.4%)	61 (52.6%)	116 (7.5%)	
6 500–9 999 €/year	44 (44.9%)	54 (55.1%)	98 (6.3%)	
10 000–13 499 €/year	75 (57.7%)	55 (42.3%)	130 (8.4%)	
13 500–16 499 €/year	38 (49.4%)	39 (50.6%)	77 (5%)	
16 500–24 999 €/year	176 (56.2%)	137 (43.8%)	313 (20.2%)	
25 000–34 999 €/year	281 (70.6%)	117 (29.4%)	398 (25.6%)	
35 000–49 999 €/year	172 (71.7%)	68 (28.3%)	240 (15.5%)	
50 000 €/year or more	87 (72.5%)	33 (27.5%)	120 (7.7%)	
Age when began gambling regularly				22
Under 16	236 (53.2%)	208 (46.8%)	444 (28.6%)	
16–20	247 (57.8%)	180 (42.2%)	427 (27.5%)	
21–29	198 (66.7%)	99 (33.3%)	297 (19.1%)	
Over 29	281 (73.4%)	102 (26.6%)	383 (24.7%)	
Years suffered from gambling problems				25
Under three years	223 (69.5%)	98 (30.5%)	321 (20.7%)	
3–5 years	260 (62.1%)	159 (37.9%)	419 (27.1%)	
6–10 years	262 (62.4%)	158 (37.6%)	420 (27.1%)	
Over 10 years	213 (54.9%)	175 (45.1%)	388 (25.1%)	
Perception of financial situation				24
Good	66 (84.6%)	12 (15.4%)	78 (5%)	
Bad, but under control	432 (73.7%)	154 (26.3%)	586 (37.8%)	
Bad, and not under control	463 (52.3%)	422 (47.7%)	885 (57.1%)	

with alcohol or narcotics. Thus, alcohol or drug use was not associated with gambling-related stealing or cheating. This finding could, of course, be because of the selection of applicants for this specific therapy program, e.g., those persons with cross-addictions may seek treatment elsewhere. However, when mental issues are added to the model (Model 3, Nagelkerke R^2 : 0,164), we noticed that a higher score on the MADRS depression screen was indeed associated with self-reported problem gambling-related cheating or stealing. These data verify a statistically

Table 2
Logistic regression results.

	Model 1			Model 2			Model 3			Model 4		
	Sig.	Exp(B)	95% C.I.for EXP(B)	Sig.	Exp(B)	95% C.I.for EXP(B)	Sig.	Exp(B)	95% C.I.for EXP(B)	Sig.	Exp(B)	95% C.I.for EXP(B)
Gender	0,359	1,122	0,877-1,436	0,737	0,955	0,732-1,247	0,72	1,052	0,798-1,386	0,488	1,104	0,834-1,462
Age	0,000	0,978	0,968-0,989	0,017	0,98	0,965-0,996	0,031	0,982	0,965-0,998	0,139	0,987	0,97-1,004
Education (vs. Master's degree or higher)	0,000			0,001			0,008			0,036		
Lower primary education	0,011	3,185	1,301-7,796	0,018	3,009	1,211-7,475	0,032	2,738	1,088-6,889	0,078	2,315	0,911-5,882
Higher primary education	0,000	3,607	2,168-6,002	0,000	3,204	1,912-5,369	0,000	2,688	1,591-4,544	0,001	2,426	1,423-4,136
Secondary education	0,003	1,983	1,258-3,124	0,007	1,888	1,194-2,987	0,014	1,786	1,124-2,837	0,045	1,62	1,012-2,594
Higher education	0,006	2,144	1,249-3,681	0,008	2,092	1,208-3,624	0,022	1,923	1,100-3,360	0,039	1,813	1,029-3,194
Bachelor's degree	0,007	1,97	1,199-3,235	0,019	1,82	1,103-3,005	0,064	1,616	0,972-2,685	0,069	1,615	0,964-2,707
Level of Income (vs. 50 000 €/year or more)	0,000			0,000			0,000			0,000		
Under 6 500 € / year	0,036	1,862	1,042-3,330	0,015	2,086	1,154-3,769	0,026	1,998	1,087-3,672	0,042	1,9	1,023-3,528
6 500-9 999 € / year	0,005	2,376	1,299-4,346	0,003	2,571	1,390-4,755	0,004	2,538	1,350-4,771	0,003	2,664	1,403-5,059
10 000-13 499 € / year	0,16	1,493	0,854-2,609	0,129	1,55	0,881-2,726	0,195	1,466	0,822-2,612	0,27	1,39	0,774-2,496
13 500-16 499 € / year	0,019	2,117	1,134-3,953	0,017	2,16	1,148-4,066	0,023	2,124	1,109-4,066	0,043	1,972	1,02-3,813
16 500-24 999 € / year	0,098	1,509	0,927-2,457	0,07	1,579	0,963-2,587	0,087	1,554	0,938-2,574	0,109	1,521	0,911-2,539
25 000-34 999 € / year	0,497	0,848	0,527-1,365	0,522	0,854	0,528-1,382	0,541	0,858	0,524-1,403	0,42	0,814	0,494-1,342
35 000-49 999 € / year	0,632	0,884	0,533-1,465	0,584	0,867	0,521-1,444	0,663	0,891	0,529-1,500	0,675	0,893	0,526-1,515
Starting age (vs. Over 29)				0,482			0,209			0,17		
Under 16 years				0,167	1,411	0,865-2,300	0,088	1,554	0,936-2,581	0,066	1,622	0,969-2,715
16-20 years				0,422	1,203	0,767-1,886	0,436	1,203	0,755-1,917	0,3	1,283	0,8-2,056
21-29 years				0,658	1,102	0,717-1,692	0,709	1,088	0,698-1,695	0,711	1,088	0,695-1,703
Duration of PG (vs. Over 10 years)				0,007			0,044			0,042		
Under 3 years				0,001	0,499	0,335-0,744	0,007	0,567	0,375-0,859	0,008	0,564	0,369-0,861
3-5 years				0,05	0,709	0,503-1,000	0,308	0,831	0,582-1,186	0,283	0,82	0,571-1,178
6-10 years				0,021	0,688	0,501-0,946	0,093	0,756	0,545-1,048	0,062	0,729	0,523-1,016
MADRS score							0,000	1,047	1,034-1,061	0,000	1,034	1,02-1,048
Perceived financial situation (vs. Bad and not under control)							0,000			0,000		
Good							0,001	0,292	0,138-0,621	0,001	0,292	0,138-0,621
Bad, but under control							0,000	0,468	0,361-0,608	0,000	0,468	0,361-0,608

significant connection between depression and self-reported problem gambling-related cheating or stealing.

Finally, we added the subjective perception of one's own financial situation to our model (Model 4, Nagelkerke R^2 : 0,198). It seemed, we found, that the more negatively the respondent saw his or her situation, the more likely that that respondent was to also report having cheated or stolen because of problem gambling. If the situation was good, or at least under control, it was less likely that the person would report having cheated or stolen because of problem gambling. This finding could be interpreted as supporting Lesieur's idea (1977) of running out of available options. Other financial variables were excluded from the analysis, because of too many missing cases.

Discussion

In 2015, Finland was estimated to have about 124,000 problem gamblers, of which about 49,000 were pathological problem gamblers (Salonen & Raisamo, 2015). Problem gambling itself already increases the risk of participating in illegal activity in general (e.g., Laursen et al., 2016). In our data, 37.6% of the attendees reported having cheated or stolen to fund their gambling. This figure is consistent with previous studies in support groups, with estimates (Dickerson et al., 1996; Folino & Abait, 2009; Meyer & Stadler, 1999; Productivity Commission, 1999) typically ranging from 20–60% of support group attendees having committed a crime to fund their gambling. The findings of our study are not generalizable to the population level, but by relying on previous studies we can roughly estimate that as much as one third of treatment-seeking problem gamblers resort to illegal measures to fund their gambling. On the population level, considering the prevalence of severe gambling addiction, this would suggest that several thousand persons in Finland are at risk of committing a problem gambling-related crime.

Inside the problem gambler population, the factors described in this study further increase this risk. The results of this study suggest that problem gambling-related cheating or stealing is predicted by young age, low education, low income, a high depression score, a long history of problem gambling, and the perception of an uncontrollable financial situation. One of the financial consequences of problem gambling is debt (Nower & Blaszczyński, 2014) and we know that, for example, 45% of problem gamblers treated at Gambling Clinic in Helsinki report having debt problems (Salonen, Castrén, Latvala, Heiskanen, & Alho, 2017b). According to this current study, financial difficulties also seem to contribute to a greater risk of committing a gambling-related crime. As simple as it sounds, the principal component of tackling problem gambling-related crime is the prevention of the escalation of gambling problems. In addition, it is crucial to target support at the risk groups with a higher probability of developing financial problems (e.g., the unemployed and persons with only a basic education): those gamblers who run out of financial options faster are more likely to try to obtain money using illegal means. Controlling problem

gambling-related crime requires solving the problem gamblers' financial crises and supporting their mental health at an early stage.

Correlation does not prove causality. It is important to note, that it remains unclear whether, for example, depression and the perception of an uncontrollable financial situation come before cheating or stealing, or if the pattern is in fact the opposite. However, theoretical models (e.g., Lesieur, 1977) and previous empirical (e.g., Sakurai & Smith, 2003) studies suggest that for problem gamblers, criminal activity is often the last resort. As the vortex of gambling strengthens and the financial situation deteriorates, the gambler has ever fewer available options to obtain more gambling money using legal means. Our data support this idea, as the duration of problem gambling had a weak but significant association with self-reported cheating or stealing. Based on our results, those men and women who are at the beginning of their problem gambling careers might still have legal options to obtain more gambling money or still perceive their financial situation as less serious.

There is a rather well-established relationship between social exclusion and crime. By some definitions, crime actually *is* an essential component of such alienation. According to various criminological studies, (1) unemployment and (2) having withdrawn from school seem to predict criminal behaviour. When qualitatively studying problem gambling-related crime reported to the police in Finland (Lind, Kääriäinen, & Kuoppamäki, 2015), three different elements emerged that preceded the crime: (1) chaotic financial situation, (2) opportunity of crime, and (3) other life-control issues, including depression and heavy use of alcohol. Such notions could be meaningfully reflected in the theory of cumulative disadvantage of Sampson & Laub (1997), and in the problem behaviour syndrome of R. Jessor and S. L. Jessor (1977).

Of the socio-economic background variables in our data, low income and education were statistically significant predictors. A low level of education seemed to increase the risk of self-reported problem gambling-related cheating and stealing. In this sense, it is interesting that employment status was not connected to the probability of reporting problem gambling-related stealing or cheating. Indeed, previous studies in criminology have in fact indicated that a strong association exists between education and criminal activity. Even though the causal mechanism between these two is difficult to ascertain, the crime-reducing effect of education could be related to several things. First, education improves socialization and attachment to society. Second, higher education often leads to higher earnings, which could reduce the need to commit a property crime. Third, education both requires and develops patience, which is seen to reduce criminal activity by developing the ability to plan and execute more sustainable solutions for the future (Lochner, 2011). Considering white-collar crime, education—by providing necessary skills and access to resources through position—may in fact increase opportunities for criminal incidents (Lochner, 2010; Machin, Marie, & Vujčić, 2011). On the other hand, in the world of computers and e-banking, fraud and embezzlement do not require sophisticated special skills.

In comparison, many criminological studies show that criminal careers start at a young age, long before employment status and education stabilize. It is understandable that, if one has a relatively long history of problem gambling already at a young age, overcoming financial problems is harder. Maturity may bring more savings, more diverse job opportunities, and more established coping skills, which can all contribute to finding solutions other than crime, even in the most difficult personal situations. Among adolescents, problem gambling increases the risk of participating in various other risk-taking activities.

In general, criminal statistics indicate that the number of frauds reported to the police in Finland has been steadily rising since the early 2000s: for example, in 2016, statistics show an 84.5% increase in reported payment frauds compared to the previous year. In 2016, 1.5 million new payment default entries were reported in Finland. According to the Bank of Finland, (Bank of Finland, 2017), the household indebtedness ratio is steadily rising—in 2020 it is estimated to be 129%. Furthermore, the household income of Finns increasingly consists of different social benefits and pensions. Such developments are extremely worrying, since the prevalence of gambling problems is known to be relatively higher among the lowest income groups. In addition, studies have shown gambling problems to be more common among persons on disability pension and long-term sick leave (Salonen, Latvala, Castrén, Selin, & Hellman, 2017a).

If we consider, for example, gambling-related embezzlement at the workplace, gamblers seem to impulsively exploit flaws in the financial control system. (Binde, 2016a; Binde, 2016b; Kuoppamäki, Kääriäinen, & Lind, 2014; Lind et al., 2015) Crimes committed by problem gamblers are usually because of combinations of a desire to fix the situation, an easy opportunity for crime, shame, and absolute financial desperation caused by gambling. Controlling problem gambling-related crime and controlling problem gambling in general is essentially the same task. Also governments play a substantial role here. The gambling monopoly has a significant financial impact on Finnish society: for years, gambling operators have been a major source of income for the state. For example, in 2014, legal gambling produced 1.2 billion Euros in Finland. What is rather alarming is that only a small portion of gamblers are responsible for as much as half of these profits: the majority of gambling consumption comprises only a notably small population. Gambling revenue is then directed to the prevention and treatment of gambling problems: the very problem caused largely by their legal monopoly. At the same time, many non-governmental social and health organizations in Finland are more or less completely dependent on these gambling profits: a certain amount of the gambling revenue created by the monopoly is shared for the public good, such as science, art, sports, health, youth work, and welfare. Examining gambling provision from the perspective of the public good, Nikkinen and Marrioneau (2014) concluded that an internal ethical conflict in governments' fiscal interest exists towards gambling. It does not seem to be ethically sound for governments to be financially dependent on profits created by an activity that is, to some extent, harmful to public health. Focusing on different damage-reduction programs and at the same time expanding the range of different gambling

products is not ethically sustainable, especially considering that certain forms of gambling-related harm can only be prevented by restricting the supply of gambling products.

Crime prevention is most likely to be more cost-effective than fixing damage caused by crime. The prevention of comorbid problems is obviously a crucial factor in improving psycho-social welfare and mental health, as well as being a significant factor in crime prevention. In addition to implementing such motivation-based crime prevention measures, opportunities for crime need to be reduced. This includes structural protection, i.e., making suitable targets more difficult to reach technically. Security control and surveillance are also needed to increase the risk of the gambler being caught. Finally, in addition to the application of technical solutions, crime-risks ought to be controlled socially by, for example, increasing employer and employee awareness of preventative measures and the different risks concerning embezzlement at the workplace. Detecting a gambling problem at an early phase and identifying the populations at risk are both important in problem gambling-related crime prevention.

Prevention should also focus on reducing opportunities to commit crimes by developing more efficient financial control mechanisms. Since using IDs and bank account details of family members seems to be a remarkably common mode of operation (Lind et al., 2015) for problem gamblers turning to crime, banks, online gambling companies and instant loan providers need to develop technological solutions to prevent identity theft. Reducing the opportunities to commit crimes also means stricter supervision at workplaces and improved customer identification for instant loan providers and gambling companies alike.

Despite the law forbidding gambling using credit in Finland, more than 45% of the gambling support group clients of Gambling Clinic in Helsinki have gambling-related debt. Although it is not technically possible to gamble using credit cards in Finland, it is possible, for example, to withdraw cash from an ATM with a credit card and gamble using this money. Tracking the true origin of gambled money is obviously particularly challenging for companies and officials: it would require co-operation at many different levels and possible restrictions on the freedom of customers.

In addition to reducing opportunities by creating stricter financial control mechanisms, technologies and awareness, the most important way to tackle problem gambling-related crime in Finland is possibly to create a supportive atmosphere for problem gamblers to seek help in time. Problem gamblers take on average eight years to seek help and at this stage, the gambling has already caused multiple serious consequences. Help is usually only sought when the problem gamblers run out of money. Stealing or cheating for money is one of the most serious consequences of problem gambling, and typically occurs after the problem has become profoundly serious and all other options have been used. According to various studies (e.g., Lind et al., 2015; Blaszczynski & McConaghy, 1994; Turner et al. 2007), problem gambling-related crime is often committed to hide the underlying problem and to fix the

resulting negative financial consequences. Previous research suggests that the perpetrators of problem gambling-related crime are generally law-abiding persons with serious financial hardships because of their gambling problem.

In Finland, the law obliges the legal gambling provider to take the social consequences of gambling into account above their financial interests. Such gambling problem discourse is often used to legitimate the monopoly (Örnberg & Tammi, 2011). The underlying assumption used to legitimate such regulation is that without limitations, gambling causes social problems, including crime. Nevertheless, it appears that gambling can also cause social problems despite being regulated. Reducing gambling problems also requires gambling companies to take action. As already stated in the Finnish Lotteries Act, persons should not be encouraged to gamble, and to the development of new gambling products should also be regulated to some extent to prevent gambling problems. As electronic gambling machines are one of the most addiction-provoking forms of gambling, it could be useful to restrict the availability of such machines in public places such as grocery stores and kiosks.

It is of course possible that gambling problems and crime have a common background factor. Such a mediating factor could be impulsiveness. Regarding developmental phases, the young are considered more impulsive, and in general, younger populations are at a higher risk of committing offences: this seems to apply also to gamblers. As already mentioned, a low level of education may be because of certain impulsiveness, or vice versa, impulsiveness might be the consequence of a low level of education.

Those respondents who report gambling-related cheating or stealing are likely to also have a negative perception of their financial situation. They are also more likely to have a higher depression score. Both depression and financial difficulties were noticed to be essential components of the situation preceding the crime in a previous study (Lind et al., 2015). It could simply be that those subjects who are severely depressed have a more hopeless attitude toward their financial situation. Such a perspective might be because of, for example, psychological features, their social situation or socialization (including education): these gamblers can find no other solutions than cheating or stealing.

Although self-report studies have certain clear limitations, they nevertheless remain a central research technique to assess the dark figure of crime. They have a long tradition in modern criminology, alongside crime victimization surveys. Self-report studies ask participants whether they have committed an act which is (a) illegal or (b) morally indefensible—here, cheating and stealing. The self-report method has proven to be fairly reliable, and has been used to study criminal behaviour among special groups such as drug users (e.g., Cartier, Farabee, & Prendergast, 2006). In Finland, the self-report method has also been utilized to assess the criminal behaviour of youth in the ISRD (International Self-reported Delinquency) research project. (Honkatukia, 1995; Kivivuori, 2005; Salmi, 2008). As regards the validity of the self-report method, individuals usually report truthfully, especially minor offences.

Criticism in turn has addressed over-emphasizing these minor offences, as the self-report study is not sensitive to differences between crime types. Nevertheless, in this study, we were essentially interested in describing the factors surrounding illegal behaviour related to problem gambling—not the details of criminal behaviour as such.

The pathways between one's financial situation and problem gambling-related crime need to be explored in more depth. In addition, even though game type was not a significant predictor of reporting problem gambling-related cheating or stealing overall, the relationship between different types of games and problem gambling-related crime would be an interesting topic for further research, especially the qualitative differences between the kind of crimes problem gamblers commit. Such themes were not within the scope of this study.

All in all, it is likely that the problem-gambler population consists of several sub-groups. Criminogenic problem gambling seems to be a slightly different phenomenon to problem gambling, and judging by our results, the populations are also somewhat different. However, we must remember that gambling itself is actually an umbrella term, and contains various qualitatively-different activities, from slot machines and dice to sports betting and horse racing.

Conclusion

Motives for gambling differ, and there are certainly several different paths that lead to problem gambling. Similarly, no single explanation for problem gambling-related crime exists. Nevertheless, the current study shows that problem gambling-related crime shares predictors of crime in general: crime is more commonly committed by younger populations, and low education significantly predicts crime. For problem gamblers, cheating and stealing seem to be the last resort in a situation that is accompanied by severe depression and the final lack of available financial options. Problem gambling-related crime is no exception to general notions in criminology: education is one of the best measures of crime prevention. Based on this study, we suggest that a wide range of services, especially those gamblers dealing with depression and financial hardship, aimed at the populations at risk, are essential for preventing problem gamblers from turning to desperate acts. Early intervention in gambling problems plays a major role in managing problem gambling-related crime.

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For correspondence: Kalle Lind (M.Soc.Sc.) Ph.D. candidate in sociology, Faculty of Social Sciences, University of Tampere, Faculty of Social Sciences, 33014 University of Tampere, Finland. E-mail: lindinkalle@gmail.com

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