



Harm as reported by affected others: A population-based cross-sectional Finnish Gambling 2019 study

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ARTICLE INFO

Keywords:

Affected others
Cross-sectional
Problem gambling
Gambling harm
Population study

ABSTRACT

This study investigates the prevalence of being an affected other (AO) of a person with problem gambling; and the associations between being an AO and socio-demographics, gambling behaviour, health-related correlates and the amount and type of gambling-related harm (GRH) for the AOs. Furthermore, perspectives of the affected family members (AFMs) and close friends (ACFs) were acknowledged. Cross-sectional, random sample Finnish Gambling population-based survey data (n = 3,994) were collected in 2019. AOs were identified using a question with seven options. Information on GRH was sought using structured questions. One-fifth (21.2 %) of all respondents were AOs, men being typically ACFs and women being more often AFMs. Being an AO was associated with younger age, gambling participation, having a gambling problem of their own and health barriers such as psychological distress. AFMs experienced GRH more often and the amount of different GRHs was greater among the AFMs. The most common harm category experienced by the AOs was emotional harm. Both health-related issues and the amount of GRHs was largest among the AFMs. A substantial amount of GRH was also experienced by ACFs. The study suggests that support could be tailored for AFMs and ACFs, based on their AO status and individual needs. A public health approach for effective harm prevention in primary, secondary and tertiary levels are discussed.

1. Introduction

Problem gambling is described as having difficulty to control time and money spent on gambling regardless of significant negative financial, personal, and social consequences (American Psychiatric Association, 2013). Typical manifestations of problematic gambling behaviour include gambling for mood alteration, chasing money lost in gambling, lying to significant others about the extent of gambling and relying on others for financial help (American Psychiatric Association, 2013; Petry, 2006). Furthermore, problem gambling has negative impacts on the gambler, significant others of gamblers and society more broadly (Langham et al., 2016; Goodwin, Browne, Rockloff, & Rose, 2017; Browne et al., 2016; Li, Browne, Rawat, Langham, & Rockloff, 2017). Any type of gambling, not just problem gambling, can potentially initiate negative consequences (Abbott et al., 2018). These consequences may be examined as co-occurring health issues or gambling-

related harms (GRHs). Overall, as much as 78.4% of Finns had gambled during the previous year, men (82.2%) having higher prevalence than women (74.5%). Langham and her colleagues (2016) emphasize the outcomes with the following taxonomy of harms: financial, health, relationship, emotional/psychological, work/study harm and social deviance harms. So far, this taxonomy has been used in studies worldwide, for example, in Australia (e.g. Li et al., 2017), in New Zealand (Browne et al., 2017), in Finland (e.g. Salonen, Hellman, Latvala, & Castrén, 2018) and in Canada (Currie et al., 2018). Our study focuses not only on prevalence of being a close person to someone with problem gambling, but extends the scope to identifying the relationship of those close to the gambler and specific GRHs they may experience using the above mentioned framework. This information on GRHs is much needed when developing support for GRHs to those in need.

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<https://doi.org/10.1016/j.addbeh.2022.107263>

Received 25 May 2021; Received in revised form 26 January 2022; Accepted 27 January 2022

Available online 1 February 2022

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1.1. Terms describing those who are close to those with problem gambling

A variety of terms are used to refer to those who are close to those with problem gambling. Previous Nordic population-based studies have used the term concerned significant other (CSO; Wenzel et al. 2008; Svensson, Romild, & Shepherdson, 2013; Salonen, Castrén, Alho, & Lahti, 2014). Recent studies have addressed people close to gamblers with the term affected other (AO; Booth et al., 2021; Rodda, Dowling, Thomas, Bagot, & Lubman, 2019). Where the term affected family member (AFM) and the sometimes even the term CSO may infer a close family member (e.g. Wenzel et al. 2008), the term AO does not imply a relationship status or level of concern (Goodwin et al., 2017). Based on our knowledge, measures such as the Problem Gambling Significant Other Impact Scale (PG-SOIS) developed by Dowling, Rodda, Lubman, and Jackson (2014) and (Hing et al., 2021), exist, but they have not been widely used in a Nordic context. Overall, the questions used in most studies rely on the AOs subjective perception of problem gambling (“i.e. respondent’s self-diagnosed problem gambling”). Also in this paper, the term AO is used to refer to someone who has had significant or affected other(s) with problem gambling according to AOs own perception.

1.2. Prevalence of being an AO

The proportion of AOs varies from 2% to 19% of the population (Wenzel, Øren, & Bakken, 2008; Salonen et al., 2014, 2015, 2018; Svensson et al., 2013; Abbott, Bellringer, Garrett, & Mundy-McPherson, 2014; Hing et al., 2021). Based on the Finnish Gambling 2015 study 19.3% of the population reported that they had been an AO at some point in their lives (Salonen & Raisamo, 2015). Based on the Finnish Gambling Harms 2016 survey the corresponding figure in a one-year time frame was 13% (Salonen et al., 2018). Furthermore, it has been estimated that problem gambling affects varying numbers of people depending on the study or approach used. The figures range from 5 to 10 (Productivity Commission Report, 1999), 6 (Goodwin et al., 2017) or 10 to 15 persons (Kalischuk, 2010). These differences may be partly explained by different definitions of AOs, different research methods and/or the timeframes used.

As a reference for the prevalence of AOs, the prevalence of adult past-year problem gambling prevalence rates varies worldwide from 0.12% to 5.8%, and in Europe from 0.12% to 3.4% (a systematic review of 69 studies by Calado & Griffiths, 2016). Using the South Oaks Gambling Screen (SOGS score 3+), 3.0% of Finns had a past-year gambling problem (Salonen, Hagfors, Lind, & Kontto, 2020). Problem gambling was more prevalent among men (4.0%), compared to women (2.1%). In addition, 10.7% of respondents were at-risk gamblers (SOGS = 1–2). In line with the gambling and problem gambling prevalence rate, also at-risk gambling was more prevalent among men (13.1%) than women (8.2%).

1.3. The prevalence of AOs and sociodemographics

Despite the higher prevalence of problem gambling among men, the proportion of AOs does not differ in Finland between genders (Salonen et al., 2014). On the other hand, it has been found that women have had at least one family member who has had a gambling problem more often than men, while men have had close friends with gambling problems more often than women have. This is in line with a Norwegian population study by Wenzel et al. (2008). However, a Swedish population study by Svensson et al. (2013) included a wider definition of AOs and this study indicated that men were more likely to be AOs than women. In the Norwegian study the Lie/Bet questions focused only on close relatives, whereas in the Swedish study the definition included any person close to the respondent and inquired it with a single question. As women are more likely to have a family member (e.g. partner) who has had a gambling problem, the higher AO prevalence among women in the Norwegian study might be indeed explained by its’ narrower and more

family-centric definition of an AO. In Norway and Sweden, the proportion of AOs were highest among 18–24- and 25–44-year-olds. Recent report from Australia report that partner’s, friend’s and former partner’s gambling were top three groups whose gambling has caused harm for AO’s (Hing et al., 2021).

1.4. AOs and co-occurring health issues

Problem gambling in a family puts family members at risk of developing problem gambling or other addictions (Dowling, 2014; Dowling et al., 2014; Kalischuk, Nowatzki, Cardwell, Klein, & Solowoniuk, 2006). AOs encounter problems with their own gambling (Svensson et al., 2013), as well as their health or mental health (Wenzel et al., 2008; Salonen et al., 2014; 2015; Svensson et al., 2013). Despite that these correlates have been linked with being an AO, it is not known whether or to what extent these are actually consequences of gambling or to what extent these are the cause for gambling.

1.5. GRHs for the AOs

Instead of focusing on the correlates, the recent research scope has broadened to identify more specifically who experiences GRHs and what type of GRH is experienced (Langham et al., 2016; Browne, Rawat, Tulloch, Murray-Boyle, & Rockloff, 2021). Financial harm tends to cause subsequent burden and exacerbate existing harm for AOs (Banks, Andersson, Best, Edwards, & Waters, 2018). This sort of harm includes financial strain, increased debt, lack of daily household items, and poor quality of food, among other problems (Shannon, Anjoul, & Blaszczyński, 2017; Hing, Tiyce, Holdsworth, & Nuske, 2013). AOs might experience loss of property and problems with creditors (Ferland et al., 2008). Furthermore, partners often bail the gambler out from his/her debts by taking loan on their behalf (Mathews & Volberg, 2013; Svensson et al., 2013). However, less is known about financial harms for ACFs.

Emotional harm includes negative mood states, such as symptoms of depression, anxiety and distress (Li et al., 2017; Jeffrey et al., 2019). More specifically, family members also experience loss of trust, hopelessness and resentment towards the gambler (Dowling et al., 2016; Hing et al., 2021). Long-term hopelessness can lead to health problems and even self-destructive thoughts or behavior also for the AO (e.g. Dickson-Swift, James, & Kippen, 2005). Additionally, health problems such as headaches and insomnia have been reported (Patford 2009). Problem gambling can create relationship problems for AOs (Li et al., 2017; Jeffrey et al., 2019; Kalischuk, 2010; Hing et al., 2021). Stress and often the necessity to take responsibility for family and household issues may lead to separation or divorce (Holdsworth 2013). Previous studies have also shown that problem gambling leads to work-related problems, such as absenteeism, for AOs (Svensson et al., 2013).

AOs may experience a range of social problems, such as criminal activity and child neglect (social deviance) (Langham et al., 2016). AOs are affected by problem gambling in their relationships (i.e. high level of interpersonal conflicts) and are impacted by dysfunction in their intimate and family relationship (i.e. perpetration of intimate partner violence and other crimes) and suffer decreased quality of life, social support and also physical health (Dowling et al., 2016; Hing et al., 2020; Suomi et al., 2019). Furthermore, gamblers’ children may experience insecurity (i.e. lack of material needs) and risk of developing problem gambling (Pitt, Thomas, Bestman, Daube, & Derevensky, 2017; Li et al., 2017). Moreover, as gambling in a family affects the family dynamics (i.e. parenting), children of gamblers are at risk of suffering from addictive behaviours, including gambling, mental health problems and suicidality themselves (Dowling, Jackson, Thomas, & Frydenberg, 2010; Black et al., 2015; Riley, Harvey, Crisp, Battersby, & Lawn, 2018).

To conclude, some population-based studies on problem gambling from the AOs’ perspective exist; however, exploration of the relationship type and its impact on GRH is scarce and much needed (Hing et al.,

2021). Also, previous studies have been methodologically heterogeneous. Given the substantial proportion of AOs, it is important to investigate the effects of GRH to increase the knowledge of this issue and to develop effective means of prevention also for the AOs. Therefore, this study aims to investigate: 1) the prevalence of being an AO of a person with problem gambling 2) the associations between being an AO and socio-demographics (gender, age), gambling behaviors (gambling participation, gambling severity) and health-related factors (perceived health, psychological distress, alcohol consumption); and 3) the amount and type of GRH for the AOs, including AFMs and ACFs.

2. Materials and methods

2.1. Data collection

The Finnish Gambling 2019 population survey's sample of 7,800 15–74-year-old Finns living in mainland Finland was selected using systematic random sampling from the Population Register Centre's sampling frame (Salonen, Hagfors, Lind, & Kontto, 2020). Persons living in institutions and persons whose native tongue is other than Finnish, Swedish or Sámi were excluded. This study is a part of series of cross-sectional studies evaluating Finnish gambling, problem gambling and attitudes toward gambling among 15 to 74-year-olds and conducted by the Finnish Institute for Health and Welfare. The study is commissioned and funded by the Ministry of Social Affairs and Health, Finland, within the objectives of the §52 Appropriation of the Lotteries Act.

The data were collected by Statistics Finland using computer-assisted telephone interviews between September and December (2019). The interviews were conducted in Finnish and Swedish. A detailed description of the data collection is available in the statistical report (Salonen et al., 2020). Altogether, 3,994 interviews were completed acceptably. The response rate was 51.9% after reducing over-coverage.

2.2. Participants

A total of 3,994 Finns participated in the study (49.2% female). The mean age of the respondents was 46.0 years (women 46.5; men 45.5 years). In general, the response rate was higher among men and among the oldest respondents compared to women and younger respondents (Salonen et al., 2020). The response rate was lower for respondents living in cities than for those living in provincial areas.

2.3. Affected others (AOs)

AOs were evaluated by asking: 'Have any of the following significant others had problems with gambling?' Seven options for significant others were available: 1) father, 2) mother, 3) sister or brother, 4) grandparent(s), 5) partner, 6) own child/children and 7) close friend (Salonen, Alho, & Castrén, 2016). The response options were: 1) yes and 2) no/do not know. Then, variables were created to indicate whether the respondent was: an AO (options 1–7), an AFM (options 1–6) or an ACF (option 7). It is noteworthy that some respondents are both AFMs and ACFs.

2.4. Socio-demographics

The socio-demographics included information about the gender and age. Dividing respondent into 15–34- and 35–74-year-olds is based on the classification by Medley (1980) of the stages of adulthood: the middle age starts at 35 years. Furthermore, problem gambling prevalence rate is of highest among Finns under 35-years (Salonen et al., 2020). Sociodemographic data were retrieved from the administrative register data of Statistics Finland and combined with the survey data.

2.5. Gambling participation and severity

The past-year gambling was assessed by asking about engagement in different types of gambling, such as lottery games, scratch cards, slot machines, betting games, poker and casino game. A variable indicating whether the respondent had gambled on at least one game type was created. To enable comparison with the previous surveys, the South Oaks Gambling Screen (SOGS) was used to measure gambling severity using 20 questions (Lesieur & Blume 1987; 1993). In the Finnish Gambling 2019 study, the SOGS was used as the primary instrument to assess the prevalence of past-year problem gambling (≥ 3 points), which was 3.0% (women 2.1%, men 4.0%; Salonen et al., 2020). In recent population studies, the SOGS has shown at least moderate internal consistency and reliability (Cronbach's $\alpha = 0.69$ to 0.84; i.e., Salonen et al., 2017; Tang, Wu, Tang, & Yan, 2010; Williams & Volberg, 2014). Herein, the Cronbach's α value was 0.76.

2.6. Self-rated health and wellbeing

General health was inquired using a single question: "How is your general health at present?". Self-rated health including five categories was then recoded into two groups: 1) bad or somewhat bad and 2) average, good or somewhat good.

Psychological distress during the four weeks preceding the response was examined using the MHI-5 instrument (Mental Health Inventory; Berwick et al., 1991). The MHI-5 tool explores the respondents' anxiety, depression, and positive moods on a scale from 1 (all the time) to 6 (not at all). Two responses to questions were inverted, the scores were added up (range 5–30) and converted (range 0–100). A cut-off of 52 points was used to represent clinically significant psychological distress. 4% of the respondents exceeded the limit of psychological distress (women 5%, men 2%; Salonen et al., 2020). The Cronbach's α value was 0.84.

An AUDIT-C (Alcohol Use Disorders Identification Test) test was used to assess risky alcohol consumption for the past-year. The scores were calculated by adding up the items (0–4 each), thus giving a score range of 0 to 12. The criterion was based on the Current Care Guidelines for risky alcohol consumption and was a score of six points or more for men and five points or more for women (Käypä, 2018). Dichotomous variable was used for the analysis (*no risky alcohol consumption vs risky alcohol consumption*). 18% of the respondents had used alcohol at risky level (women 13%, men 24%; Salonen et al., 2020). The Cronbach's α value was 0.70.

2.7. Gambling related harms for affected others

GRHs for AOs were evaluated using 12 response options (Salonen et al., 2016), ranging from physiological symptoms to negative social consequences (see Table 3 for individual items). Originally, the response options stem from previous literature and were formulated together with other experts in the field (Salonen et al., 2016). Herein, an option covering work/study-related harm and an open-ended question were added. A new variable was created to indicate the amount of GRH (Fig. 1). In accordance with harm taxonomy (Langham et al., 2016), these harms were further categorised to financial harm, emotional harm, health harm, relationship harm, work/study harm and social deviance harm. Part of the responses were labelled as multidimensional or non-specified harms. These harm categories and single items were used to describe the type of GRH.

2.8. Data analyses

The data were analysed using SPSS version 27.0 (SPSS, Chicago, IL, USA). Descriptive statistics (mean, percentages), Chi-Squared and Fisher's exact tests were used. All variables were added simultaneously in a binary logistic regression analysis. The age and gender distribution of the sampling frame and regional distributions were used to calibrate

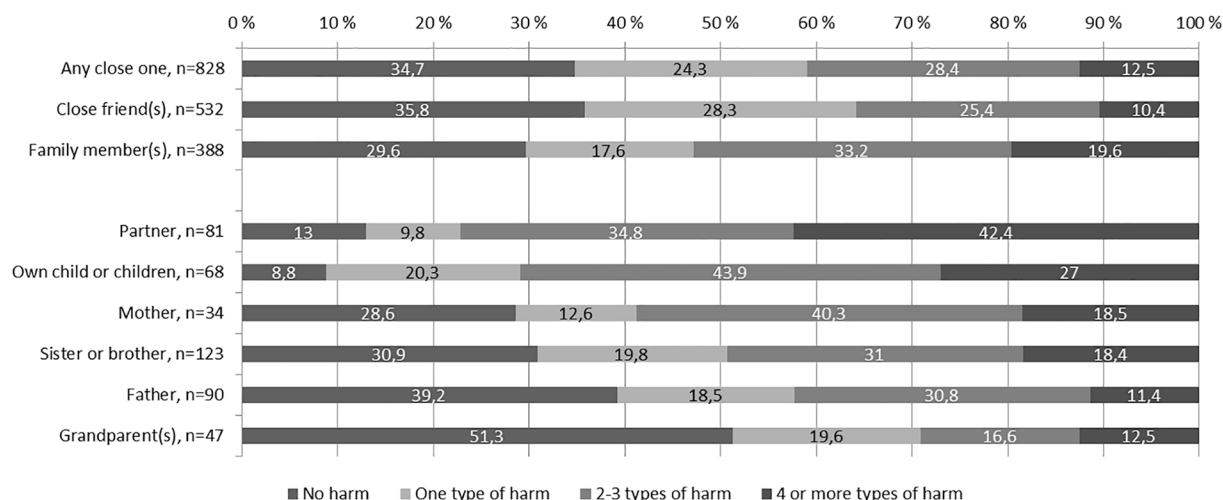


Fig. 1. The amount of gambling harm for the AOs and the problem gambler's relationship to the AOs (%).

the weights (more details in Salonen et al., 2020). Three logistic regression models examined the associations between different AOs and the covariates (Table 3). The models explore socio-demographics, gambling behaviour variables and health variables and their association with being an AO, its subgroups (AFM and ACF). Dependent variables were: 1) being an AO of any close one (yes/no), 2) being an AO of a family member (AFM; yes/no) and 3) being an AO of a friend (ACF; yes/no). The socio-demographic correlates included gender and age (15 to 34/35 to 74 years). Gambling behaviour correlates were dichotomous variables on any type of past-year gambling participation (yes/no) and gambling severity: problem gambling (SOGS 3+) and no problem gambling. In addition, a set of dichotomous health variables were included in the models: self-rated current health (poor or somewhat poor/other), past-month psychological distress (MHI-5 \leq 52; yes/no) and risky alcohol consumption (yes/no).

Missing values were defaulted to zero in order to create dichotomous 1/0 variables for the models ("yes" versus "no or missing"), without excluding the respondents with missing values from the model. The prevalence of missing values was 0.0% (n = 1) in past-year gambling participation, 0.2% (n = 8) in problem gambling, 0.3% (n = 12) in perceived health, 0.6% (n = 25) in past-month psychological distress and 0.2% (n = 8) in risky alcohol consumption past-year. In the case of past-year gambling participation missing values were interpreted as non-gambling. In other model variables missing values were coded to the largest category "0 = No". Similar most frequent category imputation approach has been used in other studies (Duello, Nagel, Thomas, Blackshear, & Freeman, 2015; Blake, Aniskevich, Thomas, & Ladlie, 2016). Multicollinearity of the predictors was tested by applying the variance inflation factor (VIF) and the results indicate that our predictors are not correlated (values less than 3). Also, correlation matrix suggests that the predictors are not strongly correlated, as there were no absolute correlation coefficients of greater than 0.3 among two or more predictors.

2.9. Ethics

The Ethics Committee of the Finnish Institute for Health and Welfare approved the research protocol (Statement THL/744/6.02.01/2019). Potential participants received written information about the study and the principles of voluntary participation. The survey data is available for research purposes from the Finnish Society Science Data Archive (FSD). The privacy notice for scientific research was published in the home page of the survey (<http://www.thl.fi/rahapelitutkimus2019>).

3. Results

The proportion of AOs was 21.2% (Table 1). The problem gambling prevalence rate among the AOs was 7.0% and 1.9% among non-AOs, and this difference was statistically significant ($\chi^2 = 57.8, p < .001$). As a reference information, problem gambling prevalence rate was 3.0% among the general population and 3.9% among all the past-year gamblers. Of the respondents, 13.7% were ACFs, while 10.0% were AFMs. Most typically, the family member was a sibling (3.2%), a father (2.5%) or a partner (2.1%). Men were ACFs more often than women, while women were AFMs more often than men. Of women, 3.5% had a partner with problem gambling, whereas the corresponding figure for men was 0.7% of men. Of the respondents, 2.4% were both AFMs and ACFs. Descriptive data on all the variables used in the logistic regression models are provided in Table 2.

Based on logistic regression analysis, being an AO was associated with younger age (15 to 34 years; OR 1.40), gambling participation (OR 1.41), having a gambling problem of their own (OR 2.82), poor self-reported general health (OR 2.07), experiencing psychological distress (OR 1.68) and risky alcohol consumption (OR 1.79) (Table 3). Being an AFM was linked to being a woman (OR 1.68), younger age (OR 1.28), having a gambling problem (OR 2.34), poor self-perceived general health (OR 2.50), psychological distress (OR 2.11) and risky alcohol consumption (OR 1.47). Finally, the odds of being an ACF was elevated for males (OR 0.74), 15–34-year-olds (OR 1.53), past-year gamblers (OR 1.49), for those who had a gambling problem (OR 2.90) and for those with risky alcohol consumption (OR 1.79).

The majority (65.3%) of AOs had experienced at least one type of GRH (Fig. 1). 70.4% of AFMs and 64.2% of ACFs had experienced at least one form of GRH. One in five AFMs had experienced at least four types of GRH. Half of the AFMs and every third ACF had experienced at least two forms of GRH. Experiencing at least four types of GRH was most common (42.4%) if the partner was suffering from problem gambling: 77.2% of the respondents reported at least one form of harm. If the gambler was their own child, 91.2% had experienced at least one type of harm and if the gambler was the mother, 71.4% had experienced at least one type of harm. GRH was experienced the least often by those whose father or grandparents was suffering from problem gambling.

Of all the AOs, 65.3% had experienced some form of harm caused by the problem gambling of a close one (Table 4). Emotional harm was the most common type of harm experienced by the AOs: 60.0% of AOs had experienced at least one form of emotional harm. Concerns about the health or well-being of other close ones was the most frequently (45.2%) experienced individual form of emotional harm, followed by emotional distress (40.9%). Among AOs, relationship harm was the second most

Table 1

The proportion of affected others (AOs) and the problem gambler's relationship to the AOs by gender.

	n	All n = 3,994%	n	Female n = 1,964%	n	Male n = 2,030%	p
Any close ones	828	21.2	396	20.6	432	21.8	0.346
Close friend(s)	532	13.7	214	11.2	318	16.2	≤0.01
Family member(s)	388	10.0	227	11.9	161	8.0	≤0.01
Sister or brother	123	3.2	66	3.5	57	2.9	0.326
Father	90	2.5	49	2.8	41	2.1	0.154
Partner	81	2.1	66	3.5	15	0.7	≤0.01
Own child or children	68	1.5	41	1.9	27	1.1	0.070
Grandparent(s)	47	1.3	22	1.2	25	1.3	0.670
Mother	34	0.9	18	1.0	16	0.8	0.616

The data (n = 3,994, non-weighted) were weighted based on gender, age and region of residence; AO, affected other of a problem gambler; Significance (p) was determined using Fisher's exact test.

Table 2

Descriptive statistics on the socio-demographics, gambling behaviours and perceived health of the affected others (AOs).

	All AOs n = 828,		Close friend (s) n = 532		Family member(s) n = 388	
	n	%	n	%	n	%
Socio-demographics						
<i>Gender</i>						
Female	396	48.5	214	40.7	227	59.8
Male	432	51.5	318	59.3	161	40.2
<i>Age</i>						
15 to 34	261	37.1	182	40.0	117	35.9
35 to 74	567	62.9	350	60.0	271	64.1
Gambling behaviours						
<i>Past-year gambling participation</i>						
Yes	690	83.5	453	85.1	312	80.9
No	138	16.5	79	14.9	76	19.1
<i>Problem gambling²</i>						
Yes	56	7.0	43	8.3	26	7.0
No	772	93.0	489	91.7	362	93.0
Perceived health						
<i>Poor or somewhat poor general health</i>						
Yes	52	5.8	26	4.3	32	7.7
No	776	94.2	506	95.7	356	92.3
<i>Past-month psychological distress³</i>						
Yes	49	6.3	26	5.3	33	8.9
No	779	93.7	506	94.7	355	91.1
<i>Risky alcohol consumption past-year⁴</i>						
Yes	224	27.7	155	30.2	95	24.7
No	604	72.3	377	69.8	293	75.3

¹Affected other (AO) of a problem gambler as a close friend and/or in the family²: partner, own child, mother, father, brother/sister and/or grandparent; ²SOGS, the South Oaks Gambling Screen; ³MHI-5, Mental Health Inventory, defined 52 points or less; ⁴The Alcohol Use Disorders Identification Test (AUDIT-C), score for risky alcohol consumption ≥ 5 among women and ≥ 6 among men;

frequently reported form of harm. Of the AOs, 24.1% had experienced at least one type of relationship harm. The most commonly experienced type of relationship harm was "Other interpersonal problems" (18.3%). Financial harm was the third most experienced category of harm. Of the AOs, 9.7% had experienced at least one type of financial harm, "other financial problems" being the most frequently reported problem (8.7%).

Turning to the ACFs, 64.2% had experienced at least one type of harm. The three most frequently experienced harm categories for the ACFs were emotional harm (58.9%), relationship harm (22.5%) and financial harm (6.4%). Generally, the ACFs prevalence rates for all harm categories were lower than for all the AOs. Of all the individual types of harm "Worries about health or well-being of other close ones" was the most commonly experienced (49.7%), followed by emotional distress (34.6%) and other interpersonal relationship problems (19.2%). Of the AFMs 70.4% had experienced at least one type of GRH. Emotional harm

(65.6%), relationship harm (30.2%) and financial harm (16.1%) were the most common forms of GRH also for AFMs. However, they most often experienced emotional distress (54.5%), worries about the health or well-being of other close ones (42.7%), and other interpersonal relationship problems (20.1%).

Overall, the AFMs experienced more harm than ACFs in all domains. Especially financial, relationship and health-related harm were more frequently experienced among the AFMs. ACFs experienced more worries about the health or well-being of other close ones than the AFMs or AOs in general.

4. Discussion

4.1. Prevalence of AOs

This paper extends the current research by not only reporting the prevalence rates of AO's but identifying the subgroups of AO's and harms that are affecting their lives. One in five people living in mainland Finland were defined as AOs, which corresponds to a population estimate of 790,000 individuals. As previously found in Finland (Salonen, Latvala, Castrén, Selin, & Hellman, 2017; Salonen & Raisamo, 2015), the person experiencing problem gambling was most often a close friend. A possible explanation for this might be that the person experiencing problem gambling actively seeks out to the company of other gamblers. For example, prior research has found that gambling students identify more strongly to other gambling students (Foster, Neighbors, Rodriguez, Lazowitz, & Gonzales, 2014) and persons with at-risk or problem gambling actively seek out to gambling related online communities to share gambling strategies and tips with other gamblers (Sirola, Kaakinen, & Oksanen, 2018). In addition, lack of social support from the primary social group may cause persons with problem gambling to seek social support and validation from other people with problem gambling (Savolainen, Sirola, Kaakinen, & Oksanen, 2019).

4.2. The relationship of the AO to the person with problem gambling

Of family members, gambling problems were experienced most often by an AO's sibling(s), partner, or father, which is relatively close to findings from Australia, where the order was partner, former partner, father/father- in-law, mother/mother in-law, other family member or relative and then a sibling (Hing et al., 2021). These differences may reflect different cultural aspects and family dynamics between Finland and Australia. It is important to notice that families and the dynamics of the families have an important role of either impacting/interposing (exposure to gambling and positive attitude toward gambling) the development of harmful gambling or preventing it through social learning (modelling behavior) (Abbott et al., 2018; Gay, Gill, & Corboy, 2016; Hardoon & Derevensky, 2001; Gupta & Derevensky, 1998). In this study AFMs were most typically women, while ACFs were most typically men as found earlier (e.g. Salonen et al., 2014, 2015; Salonen et al., 2018). Furthermore, the results suggest that the gender differences

Table 3
Associations between being an affected other (AO) and the correlates.

Correlates	Groups	Exp(B)	95% CI	being an AO of any problem gambler was associated with:	Exp(B)	95% CI	being an AO of a problem gambler ¹ in the family was associated with:	Exp(B)	95% CI	being an AO of a problem gambler ¹ as a close friend was associated with:
Socio-demographics										
Gender	female/male	1.04	0.89–1.22	–	1.68***	1.35–2.10	Female gender	0.74**	0.61–0.89	Male gender
Age	15 to 34 years/35 to 74 years	1.40***	1.19–1.66	15 to 34 years	1.28*	1.02–1.60	15 to 34 years	1.53***	1.26–1.86	15 to 34 years
Gambling behaviours										
Past-year gambling participation	yes/no	1.41***	1.15–1.73	Any gambling	1.20	0.91–1.57	–	1.49**	1.16–1.92	Any gambling
Gambling severity ²	yes/no	2.82***	1.93–4.12	Problem gambling	2.34***	1.47–3.70	Problem gambling	2.90***	1.95–4.31	Problem gambling
Self-rated health and wellbeing	yes/no	2.07***	1.41–3.04	Poor or somewhat poor general health	2.50***	1.60–3.89	Poor or somewhat poor general health	1.27	0.78–2.06	–
Self-rated current health	yes/no	1.68***	1.16–2.43	Psychological distress	2.11***	1.38–3.21	Psychological distress	1.30	0.83–2.04	–
Past-month psychological distress ³	yes/no	1.79***	1.48–2.15	Risky alcohol consumption	1.47**	1.13–1.90	Risky alcohol consumption	1.79***	1.44–2.21	Risky alcohol consumption

The data (n = 3,994, non-weighted) were weighted based on gender, age and region of residence; ¹Affected other (AO) of a problem gambler as a close friend and/or in the family: partner, own child, mother, father, brother/sister and/or grandparent; ²SOGS, the South Oaks Gambling Screen; ³MHI-5, the Mental Health Inventory, defined 52 points or less; ⁴The Alcohol Use Disorders Identification Test (AUDIT-C), score for risky alcohol consumption ≥ 5 among women and ≥ 6 among men; Significance (p) is determined by binary logistic regression analysis. * p < 0.05; ** p < 0.01; *** p < 0.001.

encountered in Nordic research may be explained by varying definitions of the AOs (e.g. Wenzel et al., 2008; Salonen et al., 2014; Svensson et al., 2013).

4.3. Sociodemographics of the AOs

Gambling and gambling problems are both more frequent among men (Hing et al., 2021; Salonen et al., 2020), which may explain the higher proportion of women (partners and daughters) being AO's (AFM's). Sharing household and being an intimate relationship with someone suffering from problem gambling may easily be linked with health and emotional harm (e.g. Kalischuk et al., 2006), compared to those AO's who do not share the same household and patterns of everyday life with the person with problem gambling. In a similar vein, AFM is likely to be affected/impacted by household's changed financial situation or initiation to bail the gambler out of debts, paying bills, which increases the AFM's psychological ill distress. Maintaining the home and household might be main responsibly for women in some cases already, the situation worsens if both financial and emotional stress due to spouse's gambling is added to daily life equation (Jeffrey et al., 2019). Problem gambling is hazardous to psychological security, as it might lead to trust issues and arguments: it is more detrimental to one's wellbeing if the home is not a psychologically safe place, compared to most other life-domains (Padgett, 2007; Cristoforetti, Gennai, & Rodeschini, 2011).

4.4. Self-rated Health, Well-being and GRHs

It is also noteworthy that the prevalence of problem gambling is higher among AOs compared to the general population and non-AOs. This is in line with previous studies (Wenzel et al., 2008). The finding might imply that gambling is a socially shared or transmitted activity and that people who gamble themselves likely have gamblers in their family or in their wider social network. It is, for example, known from previous studies (Kourgiantakis, Stark, Lobo, & Tepperman, 2016; Stark, Kourgiantakis, Lobo, & Tepperman, 2014) that children of problem gambling parents are more likely to develop problem gambling of their own (Pitt et al., 2019). This might lead to a very stressful life-situation, where AOs are trying to cope with their own problem gambling in addition to coping with the problem gambling of their family member or a friend. It may bet that some AOs have various persons with problem gambling in their life. Support service providers for AOs should take such findings into consideration in developing practices to help problem gambling AOs.

The link between health issues and being an AO was clearest among the AFMs. Own gambling problem, poor perceived health, psychological distress and risky alcohol consumption were linked to being an AFM. On the other hand, gambling participation, as well as problem gambling and risky alcohol consumption (i.e. addictive behaviours), were linked to being an ACF. AOs encounter similar comorbid problems (i.e. risky alcohol use, smoking) to gamblers and may be prone to the development of their own gambling problem (Dowling, 2014, Dowling et al., 2014; Jeffrey et al., 2019). Likewise with the health correlates, the amount of GRH was the largest and most extensive among the AFMs. Still, a substantial amount of GRH, particularly emotional harm, was experienced by ACFs.

Financial, emotional and relationship harms were the most common types of GRH, which is consistent with previous studies (Dowling et al., 2014; Li et al., 2017). Typically partners and children who share finances with a gambler, encounter greater levels of harm (Dowling et al., 2014). A majority of both AO groups had experienced emotional harm. One particular reason for stress of AFMs is due to ineffective coping skills in terms of dealing with a partner's problem gambling (Rychtarik & McGillicuddy 2006; Li et al., 2017; Kourgiantakis, Saint-Jacques, & Tremblay, 2018; Orford, Copello, Velleman, & Templeton, 2010).

Financial harm was 2.5 times more common among AFMs than ACFs.

Table 4
The type of gambling harm by harm category and the problem gambler's relationship to the AO.

Has a gambling problem of your close one(s) caused you:	All AOs		Close friend(s)		Family member(s)	
	n = 828	%	n = 532	%	n = 388	%
Any kind of harm, at least one type	537	65.3	338	64.2	273	70.4
Any financial harm, at least one type	77	9.7	32	6.4	61	16.1
• Eviction or a threat of being evicted	22	2.7	8	1.6	21	5.5
• Other financial problems, such as payment issues, loans related to gambling, loss of financial credibility	69	8.7	29	5.9	53	14.1
Any emotional harm, at least one type	494	60.0	310	58.9	255	65.6
• Emotional distress, such as stress, restlessness, anxiety, depression, hopelessness or guilt	336	40.9	181	34.6	211	54.5
• Worry about health or well-being of own child	70	7.3	23	3.8	62	13.8
• Worry about health or well-being of other close ones	368	45.2	261	49.7	162	42.7
Any health harm						
• Health impacts, such as sleep problem, head-, back- or stomach aches	57	6.9	28	5.3	44	11.6
Any relationship harm, at least one type	195	24.1	116	22.5	116	30.2
• Problems in a relationship, such as arguments, distrust, divorce or separation	78	9.7	35	7.1	61	15.8
• Other interpersonal relationship problems, such as disagreement, isolation, distancing yourself from friends	146	18.3	99	19.2	76	20.1
Any work/study harm						
• Work- or study-related harm	15	1.9	10	2.0	7	1.8
Any social harm, at least one type	45	5.5	27	5.3	29	7.5
• Emotional violence, such as blackmailing, pressuring or intimidation	30	3.7	18	3.7	20	5.3
• Physical violence witnessed or being threatened	13	1.6	8	1.5	9	2.5
• Victim of some other type of crime, for example, theft or identity theft	16	2.0	10	2.0	11	3.0
Multidimensional or non-specified harm, please specify^a	67	8.1	38	7.3	44	11.5

The numbers are percentages: AO; affected other; The data (n = 828, non-weighted) were weighted based on gender, age and region of residence. ^aMultidimensional or non-specified harm included: feelings of pity and grief, annoyance, or a suicide attempt of a close one.

Although the continuance or length of the harm was not measured in this study, financial harms tend to be long lasting i.e. so-called legacy harm according to previous literature (Langham et al., 2016). Families might experience financial troubles long after a gambler is in recovery. In addition, almost every third AFM and more than one in five ACFs had experienced various forms of relationship harm. Problem gambling deeply influences the dynamics of relationships. As AOs start to monitor evidence of gambling, gamblers may become self-justifying and annoyed because the family dynamics are changing or the gambler's motivation for change varies over time (Suurvali, Hodgins, Toneatto, & Cunningham, 2012; Johansen, Helland, Wennesland, Henden, & Brendryen, 2019; Hodgins, Toneatto, Makarchuk, Skinner, & Vincent, 2007). Gambling in a family brings strain to the relationship and it manifests as shame, stigma and lack of trust, which affects gamblers' willingness to seek help (Landon, Grayson, & Roberts, 2018).

GRH experienced by the AOs is similar to that of the gamblers; although, some differences exist, with gamblers suffering more severe harm (Li et al., 2017; Jeffrey et al., 2019). Compared to gamblers, their partners report relationship problems, such as tension and arguments, 5–6 times more often than in the general population. However, among the general population not all AOs experience GRH (Riley et al., 2018). Despite this, there is a widely emphasised need for support and treatment for AOs (Nilsson, Magnusson, Carlbring, Andersson, & Hellner, 2020; Magnusson, Nilsson, Andersson, Hellner, & Carlbring, 2019; Kalischuk, 2010; Goodwin et al., 2017; Saxton, Rodda, Booth, Mercuris, & Dowling, 2021). Our findings exemplify the intergenerational nature of the GRH, broadening the perspective beyond the current life course of both the gambler and the AO (Langham et al., 2016).

4.5. Practical implications

Using a public health lens (Elton-Marshall et al., 2017) to reduce gambling related harms could be used as a framework across the continuum of AOs. Primary prevention targets the population before the harms occur. For example, increasing awareness of gambling and the nature of GRHs both for gambler and different subgroups of AO's.

Secondary prevention targets reducing GRHs at the early stages. Educating AO's for early identification of at-risk gamblers since AOs may play a significant role in identifying the problem. Also, involving AOs in a gambler's treatment may improve the gambler's engagement in the treatment and improve their retention (Ingle, Marotta, McMillan, &

Wisdom, 2008; Kourgiantakis, Saint-Jacques, & Tremblay, 2013). As well as educating AO's themselves to identify GRHs (i.e. self-assessment tool in a web-page, which provides information on gambling and GRH's) and encouraging professionals to ask and identify possible GRH's in AO's lives, for example, using a brief Problem Gambling Significant Other Impact Scale: PG-SOIS (Dowling et al., 2014).

Tertiary prevention aims to minimize the impact of GRH's by promoting access and availability to treatment services and support. AFMs might benefit from support provided in a 5-Step Method, Stress-Strain-Coping-Support (SSCS) or CST (Orford et al., 2010; Orford, Cousins, Smith, & Bowden-Jones, 2017; Buchner, Koytek, Wodarz, & Wolstein, 2019; Cote et al., 2019), which help to cope with distress and develop communication skills, financial management and problem solving. Secondary prevention aims to limit harm at the early stages identifying at-risk groups. For example, support for ACFs, especially for men, may benefit from interventions which aim to increase awareness. Booth et al. (2021) noticed that AOs preferred to have psychoeducational material about gambling in order to prompt gamblers into the treatment. Furthermore, they also found that AOs lacked skills in supporting the gambler. Treatment approaches for AOs can be categorized as family- and gambler-focused approaches (Rodda et al., 2019, Booth et al., 2021). Despite that, basic elements of treating and supporting AOs have been acknowledged (Mercuris, Dowling, & Rodda, 2021; Kourgiantakis, Ashcroft, Mohamud, Fearing, & Sanders, 2021), there is a need for evidence of what type of interventions would suit different subgroups of AOs.

4.6. Limitations

Herein, only the personal views of AOs of persons suffering from problem gambling were recorded. It is noteworthy that while examining different cultural settings, different perspectives (i.e., the gambler's and AO's views) or studies, different definitions for AOs (family, friends, neighbours, co-workers etc.), different timeframes (past-year vs. lifetime) and/or methods of measurement (several instrument options or single questions) are often used. Even though, it would be interesting to compare the prevalence of AOs along with prevalence rate of problem gambling from the gamblers perspective, the comparison is not advisable due to above mentioned methodological differences. Consequently, the proportion of AOs is not directly comparable with the prevalence of past-year problem gambling rates obtained with validated instruments.

The proportion of AOs were examined through a single question and no time frame was specified. Consequently, the responses can be interpreted to refer to the respondent's entire life span which may have caused recall bias. In the future, the definition of AOs could be even wider including for example co-worker. Despite that several dimensions of GRH were investigated, the questions on GRH did not distinguish between the severity, continuance, or the actual extent of the harm (Langham et al., 2016). In this study, the focus was on problematic gambling of significant others and the fact that at-risk level gambling was not included, might underplay the issue.

For the purpose of keeping maximum number of respondents in the models, missing values were defaulted to zero. It is possible that our results are underestimates due to this methodological choice. Except for the past-year gambling participation variable, missing values for categorical variables were imputed using most frequent category imputation, where the missing values within a variable are replaced the most frequent value of the variable (in our study category 'no'). Most frequent category imputation is a single imputation procedure which may distort data distributions and relationships (Huisman, 2009). Single imputation can also lead to underestimated variability of the imputed variables, too low p-values, overestimation of the precision, and biased estimates (Donders, Van Der Heijden, Stijnen, & Moons, 2006, Marshall, Altman, Royston, & Holder, 2010, Zhang, 2016). The moderate amount of missing data in our study (not more than 1% within variable) may diminish these undesired effects to the results. In the future, a specific harm measure for affected others such as Short Gambling Harms Screen (CSO) (Hing et al., 2021) would be recommended.

4.7. Conclusion

A substantial proportion of the general population have encountered people suffering from problem gambling. AFMs are typically women while ACFs are typically men. The link between health issues and being an AO was found to be clearest among AFMs. Own gambling problem, poor perceived health, psychological distress, and risky alcohol consumption were linked to being an AFM. Own gambling participation, problem gambling, and risky alcohol consumption were linked to being an ACF. Overall, financial harm, emotional harm and relationship harm were the most common types of GRH. Likewise, with the health correlates, the amount of GRH was greatest for AFMs. Despite this, a substantial amount of GRH was experienced by ACFs. A public health approach for effective harm prevention in primary, secondary and tertiary levels are discussed.

5. Disclaimer

The Ministry of Social Affairs and Health, Helsinki, Finland, had no role in the study design, analysis, or interpretation of the results nor in any phase of the publication process.

6. Data availability

The data will become openly available for research purposes from the Finnish Social Science Data Archive (<https://www.fsd.uta.fi/en/>).

7. Ethics approval and consent to participate

The study was conducted in accordance with the ethical standards of the Declaration of Helsinki. The Ethics Committee of the Finnish Institute for Health and Welfare, Finland, approved the research protocol

Funding

The Finnish Gambling 2019 population study and the daily work of the author were funded by the Ministry of Social Affairs and Health, Finland, within the objectives of the §52 Appropriation of the Lotteries

Act. However, it had no role in the study design, analysis, or interpretation of the results of the manuscript or any phase of the publication process. In addition, HH and KL received personal grants also based on funding from the Ministry of Social Affairs and Health, Finland, but granted by the Finnish Foundation for Alcohol Studies.

CRedit authorship contribution statement

Kalle Lind: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Writing – Original Draft; Writing – Review & Editing. **Sari Castrén:** Conceptualization; Investigation; Methodology; Writing – Original Draft; Writing – Review & Editing; Validation; Resources. **Heli Hagfors:** Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Writing – Review & Editing. **Anne Salonen:** Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Writing – Original Draft; Writing – Review & Editing; Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- Abbott, M., Bellringer, M., Garrett, N., & Mundy-McPherson, S. (2014). *New Zealand 2012 national gambling study: Gambling harm and problem gambling*. Wellington: Ministry of Health.
- Abbott, M., Binde, P., Clark, L., Hodgins, D., Johnson, M. A., Maniowabi, D., et al. (2018). *Conceptual framework of harmful gambling: An international collaboration* (3rd ed.). ON, Canada: Guelph.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Arlington, VA: American Psychiatric Association.
- Banks, J., Andersson, C., Best, D., Edwards, M., & Waters, J. (2018). *Families living with problem gambling: Impacts, coping strategies and help-seeking*. Sheffield Hallam University.
- Black, D. W., Coryell, W., Crowe, R., McCormick, B., Shaw, M., & Allen, J. (2015). Suicide ideations, suicide attempts, and completed suicide in persons with pathological gambling and their First Degree relatives. *Suicide and Life Threatening Behavior*, 45(6), 700–709.
- Blake, B. S., Aniskevich, S., Thomas, C. S., & Ladlie, B. L. (2016). Preoperative clinical characteristics that identify potential low-volume transfusion candidates among orthotopic liver transplant patients. *Experimental and Clinical Transplantation*, 14, 405–411.
- Booth, N., Dowling, N. A., Landon, J., Lubman, D. I., Merkouris, S. S., & Rodda, S. N. (2021). Affected Others Responsivity to Gambling Harm: An International Taxonomy of Consumer-Derived Behaviour Change Techniques. *Journal of Clinical Medicine*, 10(4), 583.
- Browne, M., Bellringer, M., Greer, N., Kolandai-Matchett, K., Rawat, V., Langham, E., Rockloff, M., Palmer Du Preez, K., Abbott, M. *Measuring the Burden of Gambling Harm in New Zealand*; Ministry of Health: Wellington, New Zealand, 2017.
- Browne, M., Langham, E., Rawat, V., Greer, N., Li, E., Rose, J., et al. (2016). Assessing gambling-related harm in Victoria: A public health perspective. *Victorian Responsible Gambling Foundation*.
- Browne, M., Rawat, V., Tulloch, C., Murray-Boyle, C., & Rockloff, M. (2021). The Evolution of Gambling-Related Harm Measurement: Lessons from the Last Decade. *International Journal of Environmental Research and Public Health*, 18(9), 4395. <https://doi.org/10.3390/ijerph18094395>
- Buchner, U. G., Koytek, A., Wodarz, N., & Wolstein, J. (2019). Is an e-mental health programme a viable way to reach affected others of disordered gamblers? A feasibility study focusing on access and retention. *International Gambling Studies*, 19(1), 85–105.
- Calado, F., & Griffiths, M. (2016). Problem gambling worldwide: An update and systematic review of empirical research (2000–2015). *Journal of Behavioral Addictions*, 5, 592–613. <https://doi.org/10.1556/2006.5.2016.073>
- Productivity Commission. (1999). *Australia's gambling industries*. Report No. 10. Canberra: AusInfo.
- Cristoforetti, A., Gennai, F., & Rodeschini, G. (2011). Home sweet home: The emotional construction of places. *Journal of Aging studies*, 25(3), 225–232.
- Currie, S. R., Flores-Pajot, M.-C., Hodgins, D., Nadeau, L., Paradis, C., Robillard, C., et al. (2018). The Low Risk Gambling Guidelines Scientific Working Group A research plan to define Canada's first low-risk gambling guidelines. *Health Promotion International*, 34, 1207–1217. <https://doi.org/10.1093/heapro/day074>
- Dickson-Swift, V. A., James, E. L., & Kippen, S. (2005). The experience of living with a problem gambler: Spouses and partners speak out. *Journal of Gambling Issues*. <https://doi.org/10.4309/jgi.2005.13.6>

- Donders, A. R. T., Van Der Heijden, G. J., Stijnen, T., & Moons, K. G. (2006). A gentle introduction to imputation of missing values. *Journal of Clinical Epidemiology*, 59(10), 1087–1091.
- Dowling, N., Jackson, A. C., Thomas, S. A., & Frydenberg, E. (2010). *Children at risk of developing problem gambling*. Melbourne: Gambling Research Australia.
- Dowling, N. A., Rodda, S. N., Lubman, D. I., & Jackson, A. C. (2014). The impacts of problem gambling on concerned significant others accessing web-based counselling. *Addictive Behaviors*, 39, 1253–1257.
- Dowling, N. A., Suomi, A., Jackson, A. C., & Lavis, T. (2016). Problem gambling family impacts: Development of the problem gambling family impact scale. *Journal of Gambling Studies*, 32(3), 935–955.
- Dowling, N., Suomi, A., Jackson, A., Lavis, T., Patford, J., Cockman, S., et al. (2016). Problem gambling and intimate partner violence: A systematic review and meta-analysis. *Trauma, Violence, & Abuse*, 17(1), 43–61.
- Dowling, N. (2014). The impact of gambling problems on families (AGRC Discussion Paper No. 1). Melbourne: Australian Gambling Research Centre.
- Duella, K. M., Nagel, J. P., Thomas, C. S., Blackshear, J. L., & Freeman, W. D. (2015). Relationship of troponin T and age-and sex-adjusted BNP elevation following subarachnoid hemorrhage with 30-day mortality. *Neurocritical care*, 23(1), 59–65.
- Elton-Marshall, T., Wijesingha, R., Veselka, L., Williams, C., Carton, M., Pradeep, B., et al. (2017). *A public health approach to gambling: A report prepared for Gambling Research Exchange Ontario (GREO)*. London, Ontario: Centre for Addiction and Mental Health.
- Ferland, F., Fournier, P. M., Ladouceur, R., Brochu, P., Bouchard, M., & Pâquet, L. (2008). Consequences of pathological gambling on the gambler and his spouse. *Journal of Gambling Issues*, 22, 219–229.
- Foster, D. W., Neighbors, C., Rodriguez, L. M., Lazorwitz, B., & Gonzales, R. (2014). Self-Identification as a Moderator of the Relationship Between Gambling-Related Perceived Norms and Gambling Behavior. *Journal of Gambling Studies*, 30(1), 125–140. <https://doi.org/10.1007/s10899-012-9346-5>
- Gay, J., Gill, P. R., & Corboy, D. (2016). Parental and peer influences on emerging adult problem gambling: Does exposure to problem gambling reduce stigmatizing perceptions and increase vulnerability? *Journal of Gambling Issues*, 33, 30–51.
- Goodwin, B. C., Browne, M., Rockloff, M., & Rose, J. (2017). A typical problem gambler affects six others. *International Gambling Studies*, 17(2), 276–289.
- Gupta, R., & Derevensky, J. L. (1998). Adolescent gambling behavior: A prevalence study and examination of the correlates associated with problem gambling. *Journal of Gambling Studies*, 14(4), 319–345.
- Hardoon, K. K., & Derevensky, J. L. (2001). Social influences involved in children's gambling behavior. *Journal of Gambling Studies*, 17, 191–215.
- Hing, N., Russell, A. M. T., Browne, M., Rockloff, M., Greer, N., Rawat, V., et al. (2021). *The second national study of interactive gambling in Australia (2019–20)*. Melbourne: Gambling Research Australia.
- Hing, N., Tiyce, M., Holdsworth, L., & Nuske, E. (2013). All in the family: Help-seeking by significant others of problem gamblers. *International Journal of Mental Health and Addiction*, 11(3), 396–408.
- Hodgins, D. C., Toneatto, T., Makarchuk, K., Skinner, W., & Vincent, S. (2007). Minimal treatment approaches for concerned significant others of problem gamblers: A randomized controlled trial. *Journal of Gambling Studies*, 23(2), 215–230.
- Huisman, M. (2009). Imputation of missing network data: Some simple procedures. *Journal of Social Structure*, 10(1), 1–29.
- Ingle, P. J., Marotta, J., McMillan, G., & Wisdom, J. P. (2008). Significant others and gambling treatment outcomes. *Journal of Gambling Studies*, 24(3), 381–392.
- Jeffrey, L., Browne, M., Rawat, V., Langham, E., Li, E., & Rockloff, M. (2019). Til debt do us part: Comparing gambling harms between gamblers and their spouses. *Journal of Gambling Studies*. Advance online publication., 09826-3. <https://doi.org/10.1007/s10899-019-019-0>
- Johansen, A. B., Helland, P. F., Wennesland, D. K., Henden, E., & Brendryen, H. (2019). Exploring online problem gamblers' motivation to change. *Addictive Behaviors Reports*, 10, Article 100187.
- Kalischuk, R. G. (2010). Cocreating life pathways: Problem gambling and its impact on families. *The Family Journal*, 18(1), 7–17.
- Kalischuk, R. G., Nowatzki, N., Cardwell, K., Klein, K., & Solowoniuk, J. (2006). Problem gambling and its impact on families. *International Gambling Studies*, 6, 31–60.
- Käypä (2018). Alkoholiongelmaisen hoito: Suomalaisen Lääkäriseuran Duodecim ja Suomen Kardiologisen Seuran asettama työryhmä. Helsinki: Suomalainen Lääkäriseura Duodecim, 2018 (Treatment of alcohol abuse). <http://www.kaypah.oito.fi>
- Kourgiantakis, T., Ashcroft, R., Mohamud, F., Fearing, G., & Sanders, J. (2021). Family-focused practices in addictions: A scoping review. *Journal of Social Work Practice in the Addictions*. <https://doi.org/10.1080/1533256X.2020.1870287>
- Kourgiantakis, T., Saint-Jacques, M. C., & Tremblay, J. (2013). Problem gambling and families: A systematic review. *Journal of Social Work Practice in the Addictions*, 13(4), 353–372.
- Kourgiantakis, T., Saint-Jacques, M. C., & Tremblay, J. (2018). Facilitators and Barriers to Family Involvement in Problem Gambling Treatment. *International Journal of Mental Health and Addiction*, 16(2), 291–312. <https://doi.org/10.1007/s11469-017-9742-2>
- Kourgiantakis, T., Stark, S., Lobo, D. S. S., & Tepperman, L. (2016). Parent problem gambling: A systematic review of prevention programs for children. *Journal of Gambling Issues*, 33, 8–29.
- Landon, J., Grayson, E., & Roberts, A. (2018). An exploratory study of the impacts of gambling on affected others accessing a social service. *International Journal of Mental Health and Addiction*, 16(3), 573–587.
- Langham, E., Thorne, H., Browne, M., Donaldson, P., Rose, J., & Rockloff, M. (2016). Understanding gambling related harm: A proposed definition, conceptual framework, and taxonomy of harms. *BMC Public Health*, 16, 80. <https://doi.org/10.1186/s12889-016-2747-0>
- Li, E., Browne, M., Rawat, V., Langham, E., & Rockloff, M. (2017). Breaking Bad: Comparing Gambling Harms Among Gamblers and Affected Others. *Journal of Gambling Studies*. <https://doi.org/10.1007/s10899-016-9632-8>
- Magnusson, K., Nilsson, A., Andersson, G., Hellner, C., & Carlbring, P. (2019). Internet-delivered cognitive-behavioral therapy for significant others of treatment-refusing problem gamblers: A randomized wait-list controlled trial. *Journal of consulting and clinical psychology*, 87(9), 802.
- Marshall, A., Altman, D. G., Royston, P., & Holder, R. L. (2010). Comparison of techniques for handling missing covariate data within prognostic modelling studies: A simulation study. *BMC Medical Research Methodology*, 10(1), 1–16.
- Mathews, M., & Volberg, R. (2013). Impact of problem gambling on financial, emotional and social well-being of Singaporean families. *International Gambling Studies*, 13, 127–140. <https://doi.org/10.1080/14459795.2012.731422>
- Medley, M. L. (1980). Life satisfaction across four stages of adult life. *The International Journal of Aging and Human Development*, 11(3), 193–209.
- Merkouris, S., Dowling, N., & Rodda, S. (2020). *Affected other treatments: Systematic review and meta-analysis across addictions*. Australia: NSW Office of Responsible Gambling.
- Nilsson, A., Magnusson, K., Carlbring, P., Andersson, G., & Hellner, C. (2020). Behavioral couples therapy versus cognitive behavioral therapy for problem gambling: A randomized controlled trial. *Addiction*, 115(7), 1330–1342.
- Orford, J., Copello, A., Velleman, R., & Templeton, L. (2010). Family members affected by a close relative's addiction: The stress-strain-coping-support model. *Drugs: Education, Prevention and Policy*, 17(SUPPL. 1), 36–43. <https://doi.org/10.3109/09687637.2010.514801>
- Orford, J., Cousins, J., Smith, N., & Bowden-Jones, H. (2017). Stress, strain, coping and social support for affected family members attending the National Problem Gambling Clinic, London. *International Gambling Studies*, 17(2), 259–275.
- Padgett, D. K. (2007). There's no place like (a) home: Ontological security among persons with serious mental illness in the United States. *Social Science & Medicine*, 64(9), 1925–1936.
- Petry, N. M. (2006). Should the scope of addictive behaviors be broadened to include pathological gambling? *Addiction*, 101, 152–160.
- Pitt, H., Thomas, S. L., Bestman, A., Daube, M., & Derevensky, J. (2017). Factors that influence children's gambling attitudes and consumption intentions: Lessons for gambling harm prevention research, policies and advocacy strategies. *Harm Reduction Journal*, 14(1), 1–12. <https://doi.org/10.1186/s12954-017-0136-3>
- Riley, B. J., Harvey, P., Crisp, B. R., Battersby, M., & Lawn, S. (2018). Gambling-related harm as reported by concerned significant others: A systematic review and meta-synthesis of empirical studies. *Journal of Family Studies*. Advance online publication. <https://doi.org/10.1080/1322940.2018.1513856>
- Rodda, S. N., Dowling, N. A., Thomas, A. C., Bagot, K. L., & Lubman, D. I. (2019). Treatment for family members of people experiencing gambling problems: Family members want both gambler-focused and family-focused options. *International Journal of Mental Health and Addiction*, 1–17.
- Salonen, A. H., Alho, H., & Castrén, S. (2015). Gambling frequency, gambling problems and concerned significant others of problem gamblers in Finland: Cross-sectional population studies in 2007 and 2011. *Scandinavian Journal of Public Health*, 43(3), 229–235.
- Salonen, A. H., Alho, H., & Castrén, S. (2016). The extent and type of gambling harms for concerned significant others: A cross-sectional population study in Finland. *Scandinavian Journal of Public Health*, 44(8), 799–804.
- Salonen, A. H., Castrén, S., Alho, H., & Lahti, T. (2014). Concerned significant others of people with gambling problems in Finland: A cross-sectional population study. *BMC Public Health*, 14(1), 1471–2458.
- Salonen, A., Hagfors, H., Lind, K., & Kontto, J. (2020). Gambling and problem gambling: Finnish Gambling 2019: Prevalence of at-risk gambling has decreased. *Statistical Report 9/2020*. THL, Helsinki. <https://urn.fi/URN:NBN:fi-fe2020041719053>
- Salonen, A. H., Hellman, M., Latvala, T., & Castrén, S. (2018). Gambling participation, gambling habits, gambling-related harm, and opinions on gambling advertising in Finland in 2016. *Nordic Studies on Alcohol and Drugs*, 35(3), 215–234.
- Salonen, A., Latvala, T., Castrén, S., Selin, J., & Hellman, C. M. E. (2017). *Rahapelikyseley 2016: Rahapelaaminen, rahapelihaitat ja rahapelien markkinointiin liittyvät mielipiteet Uudenmaalla*. Helsinki: Pirkanmaalla ja Ymenlaakossa. THL.
- Salonen, A., & Raisamo, S. (2015). *Suomalaisten rahapelaaminen 2015 - Rahapelaaminen, rahapeliongelmia ja rahapelaamiseen liittyvät asenteet ja mielipiteet 15–74-vuotiailla*. Helsinki: THL.
- Salonen, A. H., Rosenström, T., Edgren, R., Volberg, R., Alho, H., & Castrén, S. (2017). Dimensions of the South Oaks Gambling Screen in Finland: A cross-sectional population study. *Scandinavian Journal of Psychology*, 2017(58), 228–237. <https://doi.org/10.1111/sjop.12357>
- Savolainen, I., Sirola, A., Kaakinen, M., & Oksanen, A. (2019). Peer Group Identification as Determinant of Youth Behavior and the Role of Perceived Social Support in Problem Gambling. *Journal of Gambling Studies*, 35(1), 15–30. <https://doi.org/10.1007/s10899-018-9813-8>
- Saxton, J., Rodda, S. N., Booth, N., Merkouris, S. S., & Dowling, N. A. (2021). The efficacy of Personalized Normative Feedback interventions across addictions: A systematic review and meta-analysis. *PLoS One*, 16(4), Article e0248262.
- Shannon, K., Anjoul, F., & Blaszczynski, A. (2017). Mapping the proportional distribution of gambling-related harms in a clinical and community sample. *International Gambling Studies*, 17(3), 366–385.
- Sirola, A., Kaakinen, M., & Oksanen, A. (2018). Excessive Gambling and Online Gambling Communities. *Journal of Gambling Studies*, 34(4), 1313–1325. <https://doi.org/10.1007/s10899-018-9772-0>

- Stark, S., Kourgiantakis, T., Lobo, D., & Tepperman, L. (2014). *Children of problem gambling parents: A critical review of risks and prevention strategies*. Guelph, ON: Ontario Problem Gambling Research Centre.
- Suomi, A., Dowling, N. A., Thomas, S., Abbott, M., Bellringer, M., Battersby, M., et al. (2019). Patterns of family and intimate partner violence in problem gamblers. *Journal of Gambling Studies*, 35(2), 465–484. <https://doi.org/10.1007/s10899-018-9768-9>
- Suurvali, H., Hodgins, D. C., Toneatto, T., & Cunningham, J. A. (2012). Motivators for seeking gambling-related treatment among Ontario problem gamblers. *Journal of Gambling Studies*, 28(2), 273–296.
- Svensson, J., Romild, U., & Shepherdson, E. (2013). The concerned significant others of people with gambling problems in a national representative sample in Sweden—a 1 year follow-up study. *BMC Public Health*, 13(1), 1087.
- Tang, C., Wu, A., Tang, J., & Yan, E. (2010). Reliability, Validity, and Cut Scores of the South Oaks Gambling Screen (SOGS) for Chinese. *Journal of Gambling Studies*, 26(1), 145–158. <https://doi.org/10.1007/s10899-009-9147-7>
- Wenzel, H. G., Ören, A., & Bakken, I. J. (2008). Gambling problems in the family—A stratified probability sample study of prevalence and reported consequences. *BMC Public Health*, 8(1), 412.
- Williams, R. J., & Volberg, R. A. (2014). The classification accuracy of four problem gambling assessment instruments in population research. *International Gambling Studies*, 14(1), 15–28. <https://doi.org/10.1080/14459795.2013.839731>
- Zhang, Z. (2016). Missing data imputation: Focusing on single imputation. *Annals of translational medicine*, 4(1).

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