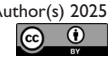


Article

new media & society
1–22
© The Author(s) 2025

Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/14614448251333739
journals.sagepub.com/home/nms


The Internet of problem gambling: A mixed-methods study of the role of Internet-enabled risk factors among Finnish adults

Eerik Soares Mantere
University of Helsinki, Finland

Iina Savolainen
Tampere University, Finland

Ilkka Vuorinen
Tampere University, Finland

Heli Hagfors
Tampere University, Finland

Jussi Palomäki
University of Helsinki, Finland

Atte Oksanen
Tampere University, Finland

Abstract

This mixed-methods study examined various ways Internet-enabled factors may contribute to problem gambling. A four-wave longitudinal survey was collected at 6-month intervals from Finnish adults ($N = 1530$). Fixed-effects regression analyses were

Corresponding author:
Eerik Soares Mantere, A-Clinic Foundation, Kuortaneenkatu 2, 00510, Helsinki, Finland.
Email: eerik.mantere@a-klinikkasaatio.fi

based on all available data across the four waves ($n = 4827$ observations). Semi-structured interviews ($N = 18$) included recovering problem gamblers. Quantitative analyses showed different forms of online gambling, participation in gambling communities online, and instant loans associated with increased problem gambling. Qualitative analyses revealed that gamblers were drawn to gambling sites through an online ecosystem including complex social and monetary incentive structures and sought instant loans through dedicated websites to continue gambling. Together, the results show that gamblers' problems have deepened and become more multifaceted due to online environments. The online realm enables gambling through ubiquitous opportunity, targeted marketing, social influence, and access to gambling credit, although it also offers information and peer support groups to help gamblers abstain.

Keywords
Longitudinal, mixed methods, problem gambling, streaming, the Internet

Introduction

The gambling industry has evolved tremendously since the emergence of the Internet. Mainly, the Internet has increased gambling availability and made it accessible from anywhere in the world, at any time (Gainsbury et al., 2015b; Wood and Williams, 2009). Casino and poker games, skill-based betting, and electronic gambling machines (EGMs) that were once tied to certain physical locations and legislations can now be readily played online—even by underage individuals (Canale et al., 2016; Sulkunen et al., 2021). The context of online gambling has increased concerns about gambling becoming a widespread public health issue. A large body of research has investigated online gambling and found it as a major culprit in increasing at-risk and problem gambling rates (Allami et al., 2021; Chóliz, 2016; Effertz et al., 2018; McCormack et al., 2013; Mora-Salgueiro et al., 2021; Wood and Williams, 2007, 2011).

While existing research has provided important insight into the antecedents and correlates of online gambling, much of the work has been cross-sectional in nature and often focused on either online gambling in general or specific types of online gambling games. As individual measurements of various psychological attributes can change over time, it is difficult to determine whether the effects observed at a given time would still hold months or years later. Also, relatively little attention has been given to other concurrent and important facets of the Internet that are related to gambling and may be risk factors for developing or maintaining problem gambling, namely, instant loans and virtual gambling communities. Insight into gamblers' own experiences and perceptions on how meaningful virtual gambling communities and instant loans are in their gambling activities is needed, in order to create viable interventions. Thus, a need for longitudinal and qualitative investigations on Internet-related risk factors of problem gambling has been identified (Allami et al., 2021). This mixed-methods study aims to fill these research gaps.

Online gambling and related online activities

The Internet provides a unique environment for gambling for several reasons. First, users have complete flexibility in terms of when they play, where they play, and what type of gadgets they use to access the game (Giménez Lozano and Morales Rodríguez, 2022). Second, whereas traditional land-based gambling venues are more limited with their game selections, virtual gambling sites offer a vast variety of games that are rapidly changing in order to keep players engaged and interested (Gainsbury et al., 2015a; McCormack et al., 2013). Wide selection of games and lower running costs also allow online gambling operators to give players higher payouts and special offers like bonuses and free spins (Kim et al., 2015; Lelonek-Kuleta and Bartczuk, 2021). Third, the Internet has provided a new type of channel for offshore gambling operators to provide games for customers in different jurisdictions (Gainsbury et al., 2018). Offshore gambling operators operate without a valid license, and against the local restrictions and standards, which have raised concerns as offshore gambling has been associated with increased gambling problems (Oksanen et al., 2022, 2024).

Online gambling is a prevalent activity. According to a population study from Finland, which is also the context of this study, 70% of participants had gambled online in the past year (Grönroos et al., 2024). Overall, gambling prevalence among adults in Finland has decreased between 2019 and 2023 but gambling problems among that smaller proportion of gamblers have increased (Grönroos et al., 2024). This shift aligns with the COVID-19 pandemic and the implementation of new gambling control measures, which limited the accessibility of offline gambling but underscored the accessibility of online platforms. Studies on the pandemic's impact on gambling indicate that, for most people, gambling behavior decreased or remained unchanged due to limited venue access. However, a small group of gamblers transitioned to online products (Brodeur et al., 2021; Wilska et al., 2021), and those who did experienced increased gambling-related harm (Marionneau and Järvinen-Tassopoulos, 2022).

Online gambling (e.g. sports betting, poker, slot machines) is potentially more hazardous than land-based gambling, partly due to its constant availability and prevalent advertising (Estévez et al., 2017; Gainsbury et al., 2015c; Lawn et al., 2020; Potenza et al., 2019; Syvertsen et al., 2022). The overall profiles of online gamblers also differ from those of offline gamblers, largely because their problems with gambling are much more connected to situational factors, such as availability and accessibility (Hubert and Griffiths, 2018). In general, online gamblers are more likely to be male and younger compared to offline gamblers (Lind et al., 2022; Pallesen et al., 2021). Online gamblers are also likely to gamble more frequently on a variety of activities and spend higher sums of money on gambling (Gainsbury et al., 2015c). Online gambling is often initiated by the motivation to make money, to seek excitement, or to demonstrate skill (Goldstein et al., 2016; Macey et al., 2025). Studies also suggest that comorbid substance use, and mental health problems may be more prevalent among online gamblers than offline gamblers (Papineau et al., 2018; Scholes-Balog and Hemphill, 2012).

The Internet brings gambling closer to the consumers, but it also gives a platform for the formation of online gambling communities where individuals interested or involved in gambling activities can get together and share gambling experiences and content

(O'Leary and Carroll, 2013; Parke and Griffiths, 2011; Sirola et al., 2019). Such communities often form around specific sites or apps, such as those provided by social media, and consist of a diversity of members who share similar interests in gambling (Miller et al., 2016; Savolainen et al., 2022; Sirola et al., 2021). Online gambling communities are used for various reasons. For example, they can offer problem gamblers a place to seek peer support and help, or alternatively, be used to share gambling tips and strategies (James and Bradley, 2021). The use of online gambling communities has been associated with a higher likelihood of problem gambling in previous research (Savolainen et al., 2022; Sirola et al., 2021). Importantly, these communities increase the social element of gambling activities, and it is possible that interacting with other gamblers normalizes gambling activities and reinforces motives to gamble, especially among at-risk gamblers (Sirola et al., 2018).

The Internet and digital technologies have further provided numerous new ways to consume. One major development has been the increased access to consumer credit like instant loans (Larsson et al., 2016). Instant loan usually refers to a credit amount of a few hundred euros with a short payback time and high interest rate (Makkonen, 2014). Gambling is centered around spending money on its activities and most gamblers end up losing money in the game (Raymen and Smith, 2020; Sulkunen et al., 2021; Volberg et al., 2001), which can easily lead to debt and serious financial problems. Instant loans provide easy and fast access to additional financial resources and can become an especially attractive alternative for gamblers who need quick monetary relief and possess the means to apply them (Oksanen et al., 2018). Many gamblers chase their losses with the intention to win back the lost money but are, in fact, more likely to continue losing which then deepens their financial burdens (Håkansson and Widinghoff, 2020). Previous studies have found that heavy gambling consumers are more likely to obtain instant loans and fail to pay them back (Håkansson, 2020). Instant loans have been also found to contribute to problem gamblers' psychological distress (Oksanen et al., 2018). Together, losing money on gambling activities and the availability of instant loans can generate an array of new challenges (Järvinen-Tassopoulos, 2020; Lind et al., 2015).

Aims of the current study

The Internet brings gambling from restricted offline venues to individuals' homes through devices like smartphones and computers, while other resources for gambling such as access to instant loans and virtual gambling communities are increasingly salient (Gainsbury et al., 2015b; Håkansson, 2020; Savolainen et al., 2022). There is a lack of longitudinal investigations into these Internet-related risk factors of problem gambling. At the same time, more qualitative research is needed to better recognize gamblers' own experiences and perceptions of the Internet-related risks.

This study investigated online gambling and associated risk in the Finnish context. Gambling is a popular activity in Finland: around 70% of the population had gambled within a 1-year period according to the latest Finnish Gambling Survey (Grönroos et al., 2024). Online gambling had also increased from 37% in 2019 to 44% in 2024 among the population. Moreover, 7% of the population had gambled on offshore gambling websites, but offshore gambling was more prevalent among men (men 11.5%, women 2.4%).

The aim of this mixed-method study is to longitudinally and qualitatively examine the role of different aspects of the Internet in gambling problems. This study was conducted during a particularly significant period, representing also the active years of the COVID-19 pandemic when EGMs and physical gambling venues were largely unavailable in Finland. Controlling measurement variability across time and using multilevel modeling enables robust predictions of problematic gambling. Furthermore, our study provides a qualitative analysis of how recovering problem gamblers have utilized the Internet and its variety of platforms and services in their gambling habit, and how they manage the challenges of Internet-afforded ubiquitous gambling opportunities while recovering from gambling problems. The research questions of our study are the following:

RQ1: How significant is the role of the Internet in problematic gambling?

RQ2: How has the Internet challenged players' efforts to avoid excessive gambling?

STUDY 1: longitudinal survey study

Methods

Participants. The quantitative section of the study comprised a longitudinal survey. A sample of 18- to 75-year-old Finnish adults was recruited from an online respondent panel administered by Norstat. Utilizing an online panel enables access to high-quality data and allows us to efficiently reach our target population of adults aged 18 to 75 residing in all major areas of Finland. The panel facilitates reliable longitudinal data collection, as Norstat manages the profiles of their panel members and invites all those who participated in the survey at T1 to partake in follow-up surveys. Norstat regularly evaluates and manages the quality of its panels by comparing members' profiles with official statistics. This approach to data collection is also cost-effective, a significant advantage compared to other recruitment methods. The current sample consisted of 50.33% male, 49.41% female, and 0.26% participants identifying as another gender. Most participants (35.29%) were from the greater Helsinki-Uusimaa region. Approximately 25% were from Western Finland, 21.50% from Southern Finland, and 18.37% from Northern and Eastern Finland. About 25% of participants were single, 59% were married or in a registered relationship, 10% were divorced, and nearly 3% were widowed. Close to 59% of participants had children, and 38.5% held a university degree. The sample effectively mirrors the current population distribution by age, gender, and geographic area.

Procedure. Initial data collection took place in March–April 2021 and yielded 1533 responses. After data quality and integrity checks which included attention checks, patterned-response checks, and rapid-response checks, three respondents were dropped. Thus, the final sample totaled to 1530 responses (T1: $M_{age} = 46.67$, $SD = 16.42$, 50.33% male). Second-wave data collection was conducted in October–November 2021 (T2: $n = 1198$, response rate 78.30% of T1 respondents) and the third wave follow-up took place in April–May 2022 (T3: $n = 1095$, response rate 71.57% of T1 respondents). The final fourth wave follow-up data collection commenced in October 2022 and was

finalized in November 2022 (T4: $n = 1008$, response rate 65.62% of T1 respondents). Respondents at T4 were, on average, slightly older than the original T1 sample (51.80 vs. 46.67 years, respectively), but no major biases were detected when comparing the demographic characteristics (age, gender, education level) of the participants to the Finnish adult population (Oksanen et al., 2022). In total, 58.95% of the T1 respondents participated in all four surveys.

At every survey collection time, the respondents were informed about the aims of the study and that by completing the survey they will give their consent for participation. Participation was wholly voluntary, and the participants could withdraw at any time without consequences. The research team only received pseudo-anonymous data from Norstat who handled sampling, recruiting, and administering of participants. Norstat compensates their panel members with Norstat coins, which can be redeemed for gift cards or donated to charity at the participants' discretion. The study procedures adhered to the ethical principles outlined in the Declaration of Helsinki. The study protocol was reviewed by the local Regional Academic Ethics committee (24/2021), which oversees non-medical research involving human subjects, and determined that the study did not present any ethical issues.

Measures. The nine-item Problem Gambling Severity Index (PGSI; Ferris and Wynne, 2001), measuring problem gambling, was the dependent variable of the quantitative analysis. The measure is widely used and efficient in assessing at-risk and problem gambling, also in non-clinical population samples (Currie et al., 2010). The original PGSI scale measures gambling habits, symptoms, and adverse consequences experienced in the last 12 months, but given the longitudinal design and 6-month data collection interval of our study, we modified the items to reflect gambling experiences in the past 6 months (e.g. "Thinking about the last six months, have you felt guilty about the way you gamble or what happens when you gamble?"). Responses are given on a scale from 0 to 3, where 0 = *never*, 1 = *sometimes*, 2 = *most of the time*, and 3 = *almost always*. The full scale had scores from 0 to 27, higher points indicating a higher likelihood of problem gambling. Internal consistency, assessed using McDonald's omega, was excellent at each time point (T1: $\omega = .95$; T2 $\omega = .94$; T3: $\omega = .94$; T4: $\omega = .94$). The PGSI was used as a continuous outcome variable in our statistical models.

Different forms of gambling involvement were inquired with a multiple response item. The anchor of the question asked, "How often, in the past 6 months, have you used the following gambling services or sites?" Choices included the following: "sites offered by the Finnish gambling provider Veikkaus," "sites offered by Paf," "sites offered by foreign gambling providers (other than Veikkaus or Paf)," "online casinos (e.g. online fruit slot games)," "online poker sites," "land-based gambling (e.g. roulette or blackjack) at a gambling venue," "land-based electronic gaming machines," and "scratch tickets." Answer choices were *never* (0), *less than once a month* (1), *monthly* (2), *weekly* (3), *once a day* (4), and *several times a day* (5). Veikkaus is a monopoly gambling operator, and it has an exclusive right to provide gambling services in mainland Finland. Paf is a monopoly operator which operates in the Åland Islands and offers both online games and games on ships sailing between Finland, Estonia, and Sweden. For the analyses, we only included those gambling forms that were played online. We termed the use of sites

offered by foreign gambling providers *offshore gambling* as these sites are outside of the Finnish jurisdiction. Thus, the analyses investigated participation in online gambling (1) on online casinos, (2) on online poker sites, (3) on sites outside the Finnish jurisdiction (offshore gambling, which includes Paf), and (4) on sites offered within the Finnish jurisdiction by Veikkaus (onshore gambling).

The participants' other online activities were screened with a multiple response item asking how often, in the past 6 months, they had used different social media services, including virtual gambling forums or communities. Answer choices were *never* (0), *less than once a month* (1), *monthly* (2), *weekly* (3), *once a day* (4), and *several times a day* (5).

We also screened whether the participants had taken any instant loans. The first survey asked the participants whether they had ever taken an instant loan, while the follow-up surveys asked about potential instant loans taken during the past 6 months. The answer choices were *no* (0), *yes* (1), and *prefer not to answer* (2).

Quantitative analysis. We used Stata version 18 to run all quantitative analyses. Descriptive statistics and correlations of the main variables were observed at T1. For the longitudinal data analysis, we utilized linear fixed-effects regression, executed using the xtreg command in Stata (McCaffrey et al., 2012). Fixed-effects models are attractive when analyzing longitudinal panel data as they can provide a stronger basis for causal inference when using repeatedly measured units and controlling for unobserved confounders (Brüderl and Ludwig, 2015; Firebaugh et al., 2013). The analyses focused exclusively on gambling and online activities. The continuous problem gambling score (PGSI) was the dependent variable and online casino use, online poker, offshore gambling, virtual gambling community use, and instant loans were time-varying predictors. All predictor variables were standardized for comparability and easier interpretation. The models estimate how variation within individuals causes change in the outcome measure while removing the effects of time-invariant causes (Firebaugh et al., 2013; Quintana, 2021). All assumptions of linear regression analysis were checked. We found outliers and heteroscedasticity and, as a result, ran the analysis by removing outliers and using robust standard errors. The fixed-effects analysis includes data from participants who contributed across timepoints. This approach ensures that all available data are utilized ($N=1530$), yielding 4827 observations and maximizing statistical power while maintaining analytical rigor. We also conducted a robustness check and applied within-subject average imputation to address missing data. After imputation, we re-ran our primary analyses and found that the results remained; thus, these are not separately reported. For the main analyses, we report standardized regression coefficients (*B*), robust standard errors (*SE*), statistical significance at the .05 level, and 95% confidence intervals.

Results

Descriptive analyses and correlations of the variables were examined. These are presented in Tables 1 and 2. The overall mean of the PGSI score was relatively low at 1.10 (on a scale ranging from 0 to 27). However, nearly 7% ($n=69$) of the participants had gambled at moderate risk level (PGSI score of 3 to 7) and nearly 5% ($n=42$)

Table 1. Descriptive statistics of the study variables.

Continuous variables	Range	T1, *M* (*SD*)	T2, *M* (*SD*)	T3, *M* (*SD*)	T4, *M* (*SD*)
Age (at T1)	18–75	49.50 (15.85)			
PGSI	0–27	1.15 (3.02)	1.12 (2.98)	1.11 (3.03)	1.01 (2.85)
Online casinos	0–5	0.38 (0.82)	0.38 (0.82)	0.36 (0.81)	0.38 (0.85)
Online poker	0–5	0.12 (0.45)	0.13 (0.46)	0.14 (0.50)	0.15 (0.51)
Offshore gambling	0–5	0.22 (0.67)	0.25 (.72)	0.24 (0.73)	0.25 (0.77)
Categorical data		T1, *n* (%)	T2, *n* (%)	T3, *n* (%)	T4, *n* (%)
Online casino users		200 (22.17)	200 (22.17)	188 (20.84)	194 (21.51)
Online poker site users		82 (9.09)	85 (9.42)	86 (9.53)	89 (9.87)
Offshore gambling		164 (18.18)	172 (19.07)	161 (17.85)	164 (18.18)
Virtual gambling communities		102 (11.31)	88 (9.76)	92 (10.20)	78 (8.65)
Instant loans		292 (19.08)[a]	27 (2.25)	43 (3.93)	29 (2.89)
Male		524 (51.27)	524 (51.27)	523 (51.17)	477 (52.88)
Female		495 (48.43)	498 (48.73)	499 (48.83)	425 (47.12)
Other		3 (0.29)	0	0	0

The following timepoints inquire about an instant loan taken in the last *6 months*.
[a]Instant loans at T1 measure if the respondent has *ever* taken an instant loan.

Table 2. Correlations of the study variables at T1 ($N = 1530$).

	1	2	3	4	5	6
1. PGSI	1					
2. Onshore gambling	0.26***	1				
3. Offshore gambling	0.58***	0.34***	1			
4. Online casinos	0.54***	0.36***	0.68***	1		
5. Online poker	0.48***	0.22***	0.60***	0.52***	1	
6. Virtual gambling communities	0.36***	0.21***	0.46***	0.38***	0.43***	1
7. Instant loans	0.32***	0.11***	0.26***	0.24***	0.18***	0.11

Note. All correlations were statistically significant at $^{***}p < .001$, except for the correlation between virtual gambling communities and instant loans ($p = .146$).

had gambled at a problem level (PGSI score of 8 or higher) during the past 2 years of measurement (T1–T4). The most common form of online gambling was online casinos, as approximately fifth of participants had gambled on, or used, online casino sites. Similarly, about 18% had visited or gambled on offshore gambling sites and 10% had played online poker. On average, no statistically significant increase in online poker or casino site use was observed across the 2-year measurement period. Online gambling communities were used by approximately 10% of participants and around 3% had taken instant loans during the past 2 years.

All forms of online gambling showed positive, statistically significant correlations with problem gambling: offshore gambling ($r = .58$), onshore gambling ($r = .26$), online

Table 3. Multilevel fixed-effects regression model predicting problem gambling over time.

Within-person effects	*B*	*SE*	*p*	95% confidence interval
Offshore gambling	.40	.11	<.001	[0.187, 0.613]
Onshore gambling (Veikkaus)	.21	.06	.001	[0.092, 0.337]
Online casinos	.23	.08	.002	[0.082, 0.377]
Online poker	.27	.09	.002	[0.102, 0.440]
Virtual gambling communities	.13	.06	.035	[0.009, 0.257]
Instant loans	.05	.02	.046	[0.001, 0.093]

casinos ($r = .54$), and online poker ($r = .45$). In addition, involvement in online gambling communities ($r = .36$) and the use of instant loans ($r = .32$) were positively associated with problem gambling. The fixed-effects models (Table 3) showed that all the investigated forms of online gambling had within-person effects on higher PGSI scores. Specifically, an increase in offshore gambling, onshore gambling, online casino gambling, or online poker participation over time had within-person effects on problem gambling. The use of virtual gambling communities also had within-person effects on PGSI scores over time ($p = .035$), as well as having taken instant loans ($p = .046$).

STUDY 2: qualitative interview study

Methods

Participants. The study consisted of one-on-one interviews conducted between November 2021 and August 2022. Participants were self-identified recovering problem gamblers who were recruited through a service constellation called Gambling Clinic in Helsinki, Finland. Gambling Clinic specialized in helping people with gambling and gaming problems as well as their close others. It offered a variety of services such as an anonymous helpline, chat, peer support group, and an online therapy program for problem gamblers and gamers until its closing in 2023.

Procedure. Invitation to participate in the study was disseminated on different online channels, including the gambling clinic's newsletter, website, Twitter account, and by the facilitators of the peer support groups. Participants were informed that participation in the study was fully voluntary and did not involve incentives. Volunteer interviewees contacted the research group via email or phone who then organized and conducted the interview sessions. Due to the effects of the Covid-19 pandemic at the end of 2021, the interviews were conducted remotely over the phone or Zoom. If the call was conducted over Zoom, the interviewee could decide whether they wanted to have their camera on and have the discussion with video image showing. Three interviewees opted to keep their camera off. A total of 18 interviews were performed (61% male, $M_{age} = 42.1$) and analyzed for this study.

The Local Academic Ethics Committee reviewed the study protocol prior to implementation and stated that no ethical issues were present (12/2021). Before each

interview, the interviewee was given an informed consent. Agreement to the informed consent was provided by texting "I consent" to the interviewer's phone or typing it in the chat box if the interview was held in Zoom. The interviewees were informed they could withdraw from the interview at any point without consequences and that their identity could not be recognized from the data used for research purposes. The interviews were voice recorded and transcribed for analysis purposes. Participants' first name and age were acquired; however, this and all other potentially identifiable information were anonymized before undergoing transcription.

Semi-structured interviews. The interviews were semi-structured and included an outline of questions that followed a predetermined framework pertaining to gambling in the digital age (see Supplementary Material 1). The interview questions were developed by the research group to align with the quantitative survey, allowing for a deeper exploration of phenomena. The development process involved formulating potential questions based on topics assessed and identified in the survey, followed by iterative discussions within the research team to ensure their relevance and suitability. This approach ensured that the semi-structured interview outline was investigative while complementing the quantitative analysis by providing richer, qualitative insights. The interviewee was asked a set of open-ended questions that allowed flexibility in the answers, as well as spontaneous follow-up questions. The interviews were approximately 30 minutes long, ranging from 20 to 60 minutes in length.

Qualitative analysis. The qualitative analysis consisted of a thematic analysis (Braun and Clarke, 2006) with the identification and organization of themes in line with inductive qualitative content analysis (Hsieh and Shannon, 2005), informed by the principle of constant comparison (Glaser and Strauss, 1967). The interview data were organized and analyzed by the first author using NVivo 14. Sections of the interviews relating to the Internet were given short verbal descriptions and thematized into parallel themes and subthemes. As is common in qualitative analysis, multiple themes exhibited conjunction and overlap, yielding to various possible systems of categorization (Denzin and Lincoln, 2000). As more findings emerged, the themes were re-synthesized in relation to the entire corpus of themes and data, throughout the process, to construct the most suitable representation of the relevant data (Corbin and Strauss, 1990). Other authors were consulted regarding the most complex thematic structures.

Results

The qualitative analysis elaborated on the roles the Internet adopts in problematic gambling. Interviews yielded 806 descriptions relating to the Internet, which were synthesized into 284 subthemes, and grouped into 31 themes and six main themes. Table 4 gives an overreaching depiction of the results with descriptions related to the Internet and their representative interview extracts, while the following chapters address the most central and novel findings of each main theme.

Table 4. The main themes, themes, and selected descriptions and data extracts in the qualitative analysis.

Internet essential in acquiring gambling funds	Advertisement of gambling credit central in going to an online casino (160) Internet provides means to access rapid loans (36) Instant money transfers to gambling sites through online services (5)	"Made 150 emails to get more gambling credit" and "Playing with free gambling credit leads to nothing": *I've made like 150 emails with fake names . . . so I could gamble with free credit, which never lets you win anything* (Eric, 35)
The nature of online gambling differs radically from land-based gambling	Omnipresence of online gambling opportunities (69) Online casinos are felt as highly tempting (29) Immensity and diversity of different online gambling opportunities (105) Gambling communities felt to be socially unimportant and focus on enabling gambling (32) Gambling found similar to crypto trading (3) Online gambling has resulted in gambling very large sums of money (15) Sense of criminality on a site increases felt pleasure (1) Internet offers secrecy and anonymity in gambling (7) Sites promise high wins but make it hard to get money back to one's bank account (15)	"Finds wealth of gambling opportunities through Google" and "Gambling is now also at home": *You just need to Google "online casinos" and you find God knows how many offers and ads. It [internet] has changed gambling. Now it's also in your home* (Diana, 67) Lost savings quickly at an online casino: *In just a few hours at an online casino . . . all the savings I had struggled to collect when studying and working low-paying jobs. Perhaps. . . yeah, I don't know what happened to me, I don't know. I guess. . . I had a kind of crisis, I wished I had more money saved. I saw others buying houses and so on, perhaps it was a bit like "darn it, I only have some thousands saved when others have tens of thousands*" (Peter, 33)
Dangers of gambling come in degrees	Offshore sites seen as most dangerous (27) Veikkaus site seen to be different (64) Internet seen to increase danger in gambling (49) Betting seen less dangerous but related information gathering consumes time (2)	Veikkaus makes you set stop-losses while offshore casinos do not: *Veikkaus site demands that you set stop-loss limits. But the foreign online casinos don't make you do anything like that* (Julia, 41)
Consequences of Internet use in gambling can be severe	Results in varying levels of psychological harm (24) Online gambling threatens one's positive identity (22) Led to severe relationship harm (14) Repeating financial harm (9) Has led to committing crimes (4)	Online gambling led to a range of psychological and social harm: *All so-, a lot of social relationships, friendships, have suffered. Mental well-being really bad. Anxiety, depression, thoughts of suicide. There's a lot, quite a range of things.* (Walt, 39)

(Continued)

Table 4. (Continued)

Online entertainment games are felt to have little relevance to gambling	Harmless financial loss but severe loss of time (10)) Some familiar elements from gambling (3) More social than gambling (1)	Noticed gambling terms in mobile games: *Played a lot of mobile games, according to my husband "grandma games" . . . At some point I noticed some of them starting to include terms familiar from gambling* (Simone, 23)
Internet also facilitates getting help	Useful helping communities such as forums and peer groups can be found online (18) Help from professionals, programs, and sites is found online (26) Mandatory identification for gambling venues help (16) Online support helps to block relapse (32) Desperation is felt due to convergence of digitalization and gambling (2) Societal awakening to harms of online gambling has come too late (2)	Gambled while pretending to be OK in online help groups: *Pretended to be OK for a couple of years . . . gambling at the same time, and then confessing and sharing.* (Julia, 41) Hopes more information to be available for gamblers when they hit the bottom and want to quit: *When you hit the bottom and want to quit, there should be more information available. It has increased in the past years, but there still should be more* (Bart, 46)

The number of descriptions in each theme is indicated in brackets.

Consequences of the loss of time and money. Several consequences of gambling-related online activities were described. Smartphones were common media for these activities. Tanya, 24, described how gambling-related smartphone use leads to a life glued to one's phone:

> Without gambling, I would be a happy and positive person, I would hear the birds and have energy to move and all. But it somehow freezes your whole body. And you just play, you can stay tapping on your phone for six hours, tensed all the time.

Ubiquitous and rapid access to gambling also often led to severe monetary, psychological, and social consequences, threatening the respondents' closest relationships. Simone, 23, described how she nearly lost her marriage due to the rapid and unregulated access to gambling that her smartphone provided her with:

> My husband told me that if things don't change, he'll leave . . . I got paid in the morning, and already around noon, I had gambled everything.

A commonly described transition from sports betting to offshore casino sites was deemed highly consequential. Internet-afforded ubiquitous access to offshore casinos, with few or no limits for bet size, meant that even a very short faltering in conviction to not gamble could be life altering. Tony, 29, described immense losses in a very short time:

> I gambled away 130.000 [euros]within ten minutes.

Acquiring gambling funds and marketing of gambling credit. Initial gambling funds were often acquired by ads offering free gambling credit. A complex system including casino-affiliated social media influencers, free gambling credit, and reference bonuses was described. Casino games streaming on platforms such as Twitch were a source of gambling credit to the affiliated casinos through reference links included in the stream. Recovering gambling addicts also watched these streams, although it was considered to be a kind of "dry-drinking" (cf. Ludwig, 1989), keeping them connected to gambling regardless of having decided to stop. Tony, 29, thought streaming to pose an underrated danger:

> Because a lot of people, me too, I watched people streaming there in Twitch, casino affiliates, I can only imagine how gambling problems will explode in Finland in, let's say the next 5 to 10 years.

Marketing of free gambling credit felt overwhelming. Opting out of this marketing was experienced to be very difficult. Barbara, 37, describes how it led to her relapse:

> If you want to completely close your account you have to write to customer service, otherwise you can just click a temporary ban for couple of months. When it's over, they'll send you emails again and tell about offers and free gambling credit, then you go again, thinking that "I'll just go and try it out."

Money won with gambling credit had to be bet again at the casino for 30–40 times before transfer to a bank account was possible. As it never amounted to real wins, instant loans were commonly used to fund gambling after the free credit ran out. Websites dedicated to listing recently opened companies, which could be used when loans from pre-existing companies had been exhausted, were instantly discoverable through Google search with a smartphone. Loans were considered too easy to acquire, and a law-required secure identification of clients was experienced lacking, leading some to commit identity fraud in their search for gambling funds, which then led to immense guilt and suicidal ideation. Some casinos allowed gambling with a phone plan, introducing a risk of losing one's phone connection due to high bills:

> When I'd been to all the instant loan companies and maxed out their loans, at some point some casino had this, that you can gamble into your phone bill. (Alex, 35)

Respondents spoke of deep desire to opt out of gambling-related marketing, but thought their past gambling-related activities online had resulted in an inescapable situation:

> If I've once gambled at online casino, they keep sending marketing and text messages and in the junk mail there is often. . . and all that. Now not for a while, but sometimes, I also get paper mail to my home. You see, my information is still there. (Don, 70)

Alex, 35, closed all his social media accounts in an attempt to escape gambling marketing, but still felt persecuted by gambling ads online:

> I go to read a news site, and suddenly it's full of these ads.

Gambling online and the identity of a "gambling professional." A wealth of descriptions depicted the Internet having made gambling more dangerous. Online casino games and live poker were often deemed the most dangerous, and those who had never tried them, had typically adopted a strict rule to never do, after hearing testimonials of other recovering gambling addicts. Distinction between betting as a realm of statistics, probabilities, and background research, versus casino games as a realm of temptation, luck, and emotionality was common. Identification as a problematic gambler versus a rationally minded gambling professional alternated in the interviews, partly in relation to this distinction:

> Perhaps in ten years or so I can go back to trying to bet prof-, like, as they say, "professionally," not professional but you know, but that temptation to gamble. . . (Jack, 39)

Many felt that betting platforms continuously tempted aspiring betting professionals toward casino games. Alex, 35, laments how this led to him ending up playing risky casino games, against his original aim of only engaging in betting:

> Same companies, I guess all of them, have the casino side too, and then you always get some. . . You get some gambling credit and bonuses to use and there was, think there was this one game that I then got into. Then playing all the other [online casino] games started from that.

Being a gambling professional could also mean running a streaming channel. Followers reinforced the gambler's professional identity also affording them to identify as valued community leaders offering entertainment and advice to members of the communities they themselves had created. However, the contracts with the affiliated casinos put them into financially adversarial relationship with their followers:

> I got 40 percent from their losses. And if someone wins like 1500 . . . my best affiliation month almost happened when I got three thousand and then some dude at the last day went and won almost two and half thousand, so it dropped to 900. (Jack, 39)

Success as a gambling professional via streaming could also be challenged by gambling the commissions to the very same casinos they worked for, while some were paid only with gambling credit to those casinos.

Online entertainment games and gambling

The few mentions the interviews included of unease about increasingly encountering gambling terminology in entertainment games perhaps mirror a worry that certain elements in video games could trigger relapse among recovering gamblers, which has also been expressed in previous research (Drummond et al., 2019). However, in contrast to some previous studies (e.g. Zendle, 2020), the recovering gambling addicts in our data saw the role of entertainment games to be insignificant in relation to gambling. They were seen merely as a waste of time, and respondents saw no point in using money in them. Potential losses in entertainment games were seen harmless in comparison to gambling.

Help from blocker programs, centralized bans, and smartphoneless living

Most often described sources of help were blocker programs like Betblocker and self-solicited bans for gambling sites. These were, however, deemed insufficient. For those having only gambled at Veikkaus, a self-solicited ban meant a welcome end to gambling problems. Others were in a different position. Better legislation was specifically hoped for removing access to private online casinos:

> put the Veikkaus site in its own category and ban the foreign gambling sites. That would be a big thing that could be done. Because, I'm sure there's some way to do that. (Don, 70)

Hope for a lifetime ban for offshore casinos was strong, but impossible to achieve. Even after soliciting bans to all possible gambling sites, respondents knew they could at any time search for newly created casinos where they could instantly start gambling again:

> It's just that, they're continuously creating more and more casinos, if you could only go somewhere to get a ban for all of them. (Barbara, 37)

Temptation for relapse was, therefore, omnipresent. One money transfer service might afford lifetime ban on gambling-related transfers, but respondents knew they could always Google for casinos that use other service providers. Inescapability of temptations could lead to despair. Barbara considered complete Internet isolation as the only solution, but deemed it unfeasible in today's world:

> I doubt the possibility of any real help, 'cause you'd have to give up your phone, to have no internet, to not be able to go anywhere.

The same rationale led Alex, 35, to actually give up their smartphone while continuing to access the Internet through other means, and reporting this to have drastically improved their life:

> so I could be free of the phone, 'cause it was. . . if not gambling, you're on Facebook or something. So, I learned again to live like before, focusing on these more important things, here at home.

General discussion

This mixed-methods study based on two samples of Finnish adults investigated Internet-related risk factors in problem gambling. The quantitative section was based on a longitudinal survey and analyzed different forms of online gambling, instant loans, and online gambling communities. The qualitative part utilized interview data from recovering problem gamblers. All studied Internet-related activities had a statistically significant within-person effect on gambling problems in the longitudinal analysis. Increased offshore gambling had the strongest effect, supporting previous research findings on harms related to gambling outside one's homeland jurisdiction (Oksanen et al., 2022, 2024). At

offshore sites, players lack the protections provided by locally regulated sites, which can compromise fair play, payout guarantees, and data security (Gainsbury et al., 2019). However, our results also showed that gambling online using onshore sites (i.e. sites provided by Veikkaus in Finland) had a within-person effect on gambling problems. While offshore gambling was a stronger predictor, gambling within jurisdiction also entails risks (Grönroos et al., 2024).

Engagement in online casinos and poker games also had within-person effects on higher gambling problems in the longitudinal model. An increase in these activities within 2 years' time predicted increased gambling problems. While unsurprising, the results highlight the role of online casino and poker sites in gambling harm also from a public health perspective (Abbott, 2020). The interviews elaborated on the ease of access to online offshore casinos and poker sites, and the sophisticated marketing strategies employed by them, often including influencers speaking one's own language. This can entice users to gamble more frequently and with higher stakes. The interviews also highlighted the omnipresence of the temptation to gamble resulting from instant access to gambling through the smartphone. Some specifically credited the most disastrous consequences of gambling to this, highlighting that not only is temptation to gamble ubiquitous because of smartphones, but the nature of smartphone use allows gambling to take place without others realizing that the person using their smartphone is gambling (cf. Mantere et al., 2021). The significance of omnipresent online access through smartphones was not, however, limited to accessing online casinos. While blocker programs restricting access to gambling sites were said to offer protection against relapse at a moment of temptation, the methods for circumventing these protective restrictions were also immediately and ubiquitously discoverable through a Google search with one's smartphone.

The perception of being "hunted down" by online casinos even after countless attempts to block gambling advertisements merits more research. Some respondents suspected the casinos sold their contact information to other casinos, while others remarked that the same parent company could be behind several gambling sites, perhaps inviting investigations on how client contact information is treated, and whether recovering gambling addicts are allowed to opt out of all marketing from parent companies owning multiple gambling sites. Instead of trusting companies' self-regulation, respondents wished legislation to address these issues. A proposal for a new gambling act in Finland has passed, where the monopoly status of Veikkaus will be dismantled and online slot and casino games are allowed to operate for competition. The new license-based gambling system means changes to gambling marketing and bans. Our results could inform the direction these changes take. The results of this study underscore the need for more effective and clearer universal regulations on gambling marketing in the online sphere. This is particularly important in addressing marketing content that promotes unregulated gambling sites and deliberately targets already at-risk populations.

Taking instant loans was connected to problem gambling through both quantitative and qualitative analyses. Considering Håkansson's (2020) findings on instant loans specifically being connected to loss of control in intense short-term gambling sessions, the qualitative results describing the "head-hunting" nature of recipient-designed online advertisement of both loan companies and online casinos are noteworthy. Increased

monitoring is essential for enhancing oversight of digital platforms to identify and penalize unregulated or predatory marketing practices of such loan companies. The danger these advertising practices pose is further escalated by references to suicidal ideation resulting from indebtedness and shame, which are specifically connected to the ease of relapse that the online loans and online casinos afford (Vijayakumar and Vijayakumar, 2023). Previous research suggests 19% of gambling addicts having contemplated suicide within the last year, and 4.7% having attempted one (Marionneau and Nikkinen, 2022).

Engagement with gambling-related online communities also predicted gambling problems in both samples. This is in line with earlier research connecting the use of virtual gambling communities to increased problem gambling and harm (Savolainen et al., 2022; Sirola et al., 2021). Such online communities create a social environment where gambling is normalized and encouraged. Community members share tips, strategies, and success stories, creating a gambling-promoting culture. Online communities facilitate access to gambling opportunities as members share links to gambling sites, discuss promotions and bonuses, and provide support and encouragement to continue. On the contrary, online peer support networks can provide valuable resources, encouragement, and a sense of solidarity without fear of judgment for individuals seeking to overcome gambling problems (Savolainen et al., 2022).

Our results might be used to develop some novel help. For instance, the prevalent practice of quickly finding ways to go around previously set gambling restrictions by means of a simple Google search might be solved by restricting Internet searches to an artificial intelligence (AI)-powered tool that is "aware" of the user's gambling problem. As some companies prepare smartphones with integrated AI, such tools, when correctly trained to help with gambling problems, might offer relief for people feeling their smartphones make gambling to be an omnipresent temptation. Considering the readiness of some recovering gamblers to get rid of smartphones altogether or even declare themselves under guardianship of a social worker in order to avoid relapse, AI-induced restrictions safeguarding them from gambling might be welcomed by many. While the primary focus of our study was not on recovery from problem gambling, our findings suggest that certain factors—such as strong social support networks offline or recovery groups online, reduced accessibility to online gambling venues, and restrictions on instant loans and their marketing—may support recovery and abstinence and help mitigate gambling-related harms. However, further research examining recovery trajectories would be needed for definitive conclusions about the recovery process.

Our study contains a few limitations that ought to be mentioned. Although offshore gambling predicted more severe gambling problems over time in the fixed-effects model, it is not entirely clear what aspects of offshore gambling (e.g. access to unregulated products or the type of gambling content) drive this effect. Future studies should investigate this matter in more detail, also using alternative measures for assessing gambling engagement in online venues. In addition, our study followed participants in Finland over a 2-year period, but we cannot generalize the relationships between the variables to a more global context. Future research should address these questions using cross-national and longitudinal approaches. Furthermore, our study primarily focuses on different types of online gambling, instant loans, and online communities. While this provides insights into

the varied ways the Internet may influence problem gambling, it does not capture all relevant factors contributing to gambling problems or their mitigation in the online context. Future research could also explore alternative or complementary analytical approaches, such as mixed-effects models or multiple imputation techniques, to investigate these relationships and address missing data in longitudinal analyses using different approaches. Alternative models could also account for temporally stable factors such as age and gender which were not included in our fixed-effects approach.

In conclusion, our findings underscore the significant impact of various online activities, including offshore gambling, online poker, virtual gambling communities, and instant loans, on gambling problems. The longitudinal analysis demonstrated that increased engagement in these activities over time is associated with higher problem gambling severity. In addition, the qualitative interviews provided insights into how the Internet facilitates gambling through ubiquitous opportunities, targeted marketing, social influence, and easy access to gambling credit, all contributing to a creation of social environments that normalize and encourage gambling behaviors.

Author's Note

Eerik Soares Mantere is also affiliated to A-Clinic Foundation, Finland; Tampere University, Finland.
Jussi Palomäki is also affiliated to Finnish Institute for Health and Welfare, Finland.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The study was funded by The Finnish Foundation for Alcohol Studies [Gambling in the Digital Age Project, 2021–2024, PI: A. Oksanen]. Two of the authors received personal grants: Ilkka Vuorinen was supported by grants from the Jenny and Antti Wihuri Foundation and the Finnish Foundation for Alcohol Studies. Heli Hagfors was supported by grants from the Finnish Foundation for Alcohol Studies

ORCID iDs

Eerik Soares Mantere https://orcid.org/0000-0002-5184-5818
Iina Savolainen https://orcid.org/0000-0002-8811-965X
Heli Hagfors https://orcid.org/0000-0001-8096-4157
Atte Oksanen https://orcid.org/0000-0003-4143-5580

Supplemental material

Supplemental material for this article is available online.

References

Abbott MW (2020) Gambling and gambling-related harm: recent World Health Organization initiatives. *Public Health* 184: 56–59.
Allami Y, Hodgins DC, Young M, et al. (2021) A meta-analysis of problem gambling risk factors in the general adult population. *Addiction* 116(11): 2968–2977.

Braun V and Clarke V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2): 77–101.

Brodeur M, Audette-Chapdelaine S, Savard AC, et al. (2021) Gambling and the COVID-19 pandemic: a scoping review. *Progress in Neuro-psychopharmacology and Biological Psychiatry* 111: 110389.

Brüderl J and Ludwig V (2015) *Fixed-Effects Panel Regression*. In: Best H and Wolf C (eds.) The Sage Handbook of Regression Analysis and Causal Inference, Thousand Oaks: Sage, pp. 327–335.

Canale N, Griffiths MD, Vieno A, et al. (2016) Impact of Internet gambling on problem gambling among adolescents in Italy: findings from a large-scale nationally representative survey. *Computers in Human Behavior* 57: 99–106.

Chóliz M (2016) The challenge of online gambling: the effect of legalization on the increase in online gambling addiction. *Journal of Gambling Studies* 32: 749–756.

Corbin J and Strauss A (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage.

Currie SR, Casey DM and Hodgins DC (2010) *Improving the Psychometric Properties of the Problem Gambling Severity Index*. Ottawa, ON, Canada: Canadian Consortium for Gambling.

Denzin NK and Lincoln YS (2000) *Handbook of Qualitative Research*. 2nd ed. Thousand Oaks, CA: Sage.

Drummond A, Sauer JD and Hall LC (2019) *Loot box limit-setting: a potential policy to protect video game users with gambling problems*? Addiction (Abingdon, England). [Online] 114(5): 935–936.

Effertz T, Bischof A, Rumpf HJ, et al. (2018) The effect of online gambling on gambling problems and resulting economic health costs in Germany. *The European Journal of Health Economics* 19(7): 967–978.

Estévez A, Rodríguez R, Díaz N, et al. (2017) How do online sports gambling disorder patients compare with land-based patients? *Journal of Behavioral Addictions* 6(4): 639–647.

Ferris J and Wynne HJ (2001) *The Canadian Problem Gambling Index Final Report*. Ottawa, ON, Canada: Canadian Centre on Substance Abuse.

Firebaugh G, Warner C and Massoglia M (2013) Fixed effects, random effects, and hybrid models for causal analysis. In: Morgan S (ed.) *Handbook of Causal Analysis for Social Research*. Dordrecht: Springer, pp. 113–132.

Gainsbury SM, Abarbanel B and Blaszczynski A (2019) Factors influencing internet gamblers' use of offshore online gambling sites: policy implications. *Policy and Internet* 11(2): 235–253.

Gainsbury SM, Russell A, Blaszczynski A, et al. (2015a) Greater involvement and diversity of Internet gambling as a risk factor for problem gambling. *The European Journal of Public Health* 25(4): 723–728.

Gainsbury SM, Russell A, Hing N, et al. (2015b) How the Internet is changing gambling: findings from an Australian prevalence survey. *Journal of Gambling Studies* 31(1): 1–15.

Gainsbury SM, Russell A, Wood R, et al. (2015c) How risky is Internet gambling? A comparison of subgroups of Internet gamblers based on problem gambling status. *New Media & Society* 17(6): 861–879.

Gainsbury SM, Russell AM, Hing N, et al. (2018) Consumer engagement with and perceptions of offshore online gambling sites. *New Media & Society* 20(8): 2990–3010.

Giménez Lozano JM and Morales Rodríguez FM (2022) Systematic review: preventive intervention to curb the youth online gambling problem. *Sustainability* 14(11): 6402.

Glaser B and Strauss A (1967) *The discovery of grounded theory: Strategies for qualitative research*. Mill Valley, CA: Sociology Press.

Goldstein A, Vilhena-Churchill N, Stewart SH, et al. (2016) Mood motives and money: an examination of factors that differentiate online and non-online young adult gamblers. *Journal of Behavioral Addictions* 5(1): 68–76.

Grönroos T, Salonen AH, Latvala T, et al. (2024) *Finnish gambling 2023. Gambling has decreased, gambling problems have become more prevalent and attitudes towards gambling have changed*. Statistical Report no. 15/2024. Helsinki: THL. Available at: https://urn.fi/URN:NBN:fi-fe2024040414663

Håkansson A (2020) Role of gambling in payback failure in consumer credit – data from a large body of material regarding consumer loan recipients in Sweden. *International Journal of Environmental Research and Public Health* 17(8): 2907.

Håkansson A and Widinghoff C (2020) Over-indebtedness and problem gambling in a general population sample of online gamblers. *Frontiers in Psychiatry* 11: 7.

Hsieh H and Shannon S (2005) Three approaches to qualitative content analysis. *Qualitative Health Research* 15(9): 1277–1288.

James RJ and Bradley A (2021) The use of social media in research on gambling: a systematic review. *Current Addiction Reports* 8(2): 235–245.

Järvinen-Tassopoulos J (2020) The impact of problem gambling: are there enough services available for families with children? *Public Health* 184: 28–32.

Kim HS Wohl MJA Salmon MM et al. (2015) Do social casino gamers migrate to online gambling? An assessment of migration rate and potential predictors. *Journal of Gambling Studies* 31(4): 1819–1831.

Larsson S, Svensson L and Carlsson H (2016) *Digital Consumption and Over-Indebtedness Among Young Adults in Sweden*, vol. 3 (Report). Lund: Lund University Internet Institute.

Lawn S, Oster C, Riley B, et al. (2020) A literature review and gap analysis of emerging technologies and new trends in gambling. *International Journal of Environmental Research and Public Health* 17(3): 744.

Lelonek-Kuleta B and Bartczuk RP (2021) Online gambling activity, pay-to-win payments, motivation to gamble and coping strategies as predictors of gambling disorder among e-sports bettors. *Journal of Gambling Studies* 37(4): 1079–1098.

Lind K, Kääriäinen J and Kuoppamäki SM (2015) From problem gambling to crime? Findings from the Finnish National Police Information System. *Journal of Gambling Issues* 30: 98–123.

Lind K, Marionneau V, Järvinen-Tassopoulos J, et al. (2022) Socio-demographics, gambling participation, gambling settings, and addictive behaviors associated with gambling modes: a population-based study. *Journal of Gambling Studies* 38(4): 1111–1126.

Ludwig AM (1989) *Understanding the Alcoholic's Mind: The Nature of Craving and How to Control It*. Oxford: Oxford University Press.

Macey J, Palomäki J and Castrén S (2025) Using latent class analysis to identify Finnish gambler types and potential risk. *International Gambling Studies* 25: 22–45.

Makkonen A (2014) Instant loans: problems and regulations in Finland. *Juridica International* 22: 96.

Mantere E, Savela N and Oksanen A (2021) Phubbing and social intelligence: role-playing experiment on bystander inaccessibility. *International Journal of Environmental Research and Public Health* 18(19): 10035.

Marionneau V and Järvinen-Tassopoulos J (2022) From habit-forming to habit-breaking availability: experiences on electronic gambling machine closures during COVID-19. *Frontiers in Psychology* 12: 788586.

Marionneau V and Nikkinen J (2022) Gambling-related suicides and suicidality: a systematic review of qualitative evidence. *Frontiers in Psychiatry* 13: 980303.

McCaffrey DF, Lockwood JR, Mihaly K, et al. (2012) A review of Stata commands for fixed-effects estimation in normal linear models. *The Stata Journal* 12(3): 406–432.

McCormack A, Shorter GW and Griffiths MD (2013) An examination of participation in online gambling activities and the relationship with problem gambling. *Journal of Behavioral Addictions* 2(1): 31–41.

Miller C, Krasodomski-Jones A and Smith J (2016) *Gambling and Social Media*. London: Demos.

Mora-Salgueiro J, García-Estela A, Hogg B, et al. (2021) The prevalence and clinical and sociodemographic factors of problem online gambling: a systematic review. *Journal of Gambling Studies* 37(3): 899–926.

Oksanen A, Hagfors H, Vuorinen I, et al. (2022) Longitudinal perspective on cryptocurrency trading and increased gambling problems: a 3-wave national survey study. *Public Health* 213: 85–90.

Oksanen A, Mantere E, Vuorinen I, et al. (2022) Gambling and online trading: emerging risks of real-time stock and cryptocurrency trading platforms. *Public Health* 205: 72–78.

Oksanen A, Savolainen I, Sirola A, et al. (2018) Problem gambling and psychological distress: a cross-national perspective on the mediating effect of consumer debt and debt problems among emerging adults. *Harm Reduction Journal* 15(1): 1–11.

Oksanen A, Vuorinen I, Hagfors H, et al. (2024) Colliding harms of gambling and gaming: a four-wave longitudinal population study of at-risk gambling and gaming in Finland. *Nordic Studies on Alcohol and Drugs* 41(5): 474–490.

O'Leary K and Carroll C (2013) The online poker sub-culture: dialogues, interactions and networks. *Journal of Gambling Studies* 29(4): 613–630.

Pallesen S, Mentzoni RA, Morken AM, et al. (2021) Changes over time and predictors of online gambling in three Norwegian population studies 2013–2019. *Frontiers in Psychiatry* 12: 597615–597615.

Papineau E, Lacroix G, Sevigny S, et al. (2018) Assessing the differential impacts of online, mixed, and offline gambling. *International Gambling Studies* 18(1): 69–91.

Parke A and Griffiths MD (2011) Poker gambling virtual communities: the use of computer-mediated communication to develop cognitive poker gambling skills. *International Journal of Cyber Behavior, Psychology and Learning* 1(2): 31–44.

Potenza MN, Balodis IM, Derevensky J, et al. (2019) Gambling disorder. *Nature Reviews Disease Primers* 5(1): 1–21.

Quintana R (2021) Thinking within-persons: using unit fixed-effects models to describe causal mechanisms. *Methods in Psychology* 5: 100076.

Raymen T and Smith O (2020) Lifestyle gambling, indebtedness and anxiety: a deviant leisure perspective. *Journal of Consumer Culture* 20(4): 381–399.

Savolainen I, Sirola A, Vuorinen I, et al. (2022) Online communities and gambling behaviors – *a systematic review. Current Addiction Reports* 9(4): 400–409.

Scholes-Balog KE and Hemphill SA (2012) Relationships between online gambling, mental health, and substance use: a review. *Cyberpsychology, Behavior and Social Networking* 15(12): 688–692.

Sirola A, Kaakinen M and Oksanen A (2018) Excessive gambling and online gambling communities. *Journal of Gambling Studies* 34(4): 1313–1325.

Sirola A, Kaakinen M, Savolainen I, et al. (2019) Loneliness and online gambling-community participation of young social media users. *Computers in Human Behavior* 95: 136–145.

Sirola A, Savela N, Savolainen I, et al. (2021) The role of virtual communities in gambling and gaming behaviors: a systematic review. *Journal of Gambling Studies* 37(1): 165–187.

Sulkunen P, Babor TF, Cisneros Örnberg J, et al. (2021) Setting limits: gambling, science and public policy – summary of results. *Addiction* 116(1): 32–40.
Syvertsen A, Erevik EK, Hanss D, et al. (2022) Relationships between exposure to different gambling advertising types, advertising impact and problem gambling. *Journal of Gambling Studies* 38(2): 465–482.
Vijayakumar L and Vijayakumar V (2023) Online gambling and suicide: gambling with lives. *Indian Journal of Psychiatry* 65(1): 3.
Volberg RA, Gerstein DR, Christiansen EM, et al. (2001) Assessing self-reported expenditures on gambling. *Managerial and Decision Economics* 22(1–3): 77–96.
Wilska TA, Sirola A, Nuckols J, et al. (2021) A year of COVID-19 in three countries–a study on the effects of the COVID-19 pandemic on everyday life, consumption and digital behaviour in Finland, Sweden, and Great Britain. *YFI Julkaisuja*. Available at: https://jyx.jyu.fi/jyx/Record/jyx_123456789_77801
Wood RT and Williams RJ (2007) Problem gambling on the Internet: implications for internet gambling policy in North America. *New Media & Society* 9(3): 520–542.
Wood RT and Williams RJ (2009) *Internet gambling: prevalence, patterns, problems, and policy options*. Final Report Prepared for the Ontario Problem Gambling Research Centre. Guelph, ON: Ontario Problem Gambling Research Centre.
Wood RT and Williams RJ (2011) A comparative profile of the Internet gambler: demographic characteristics, game-play patterns, and problem gambling status. *New Media & Society* 13(7): 1123–1141.
Zendle D (2020) Beyond loot boxes: a variety of gambling-like practices in video games are linked to both problem gambling and disordered gaming. *PeerJ* 2020(7): e9466.

Author biographies

Eerik Soares Mantere has a doctorate in social psychology from Tampere University and a doctorate in sociology from the University of Bordeaux. He currently works as a postdoctoral researcher in social work at the A-Clinic Foundation focusing on social rehabilitation of young adults in Finland.

Iina Savolainen is a senior research fellow and the vice director of the Emerging Technologies Lab at Tampere University, Finland. Her research adopts a social psychological perspective to explore the intersection of technology and human behavior, with a focus on the role of technology and the evolving landscape of the online world in addictive behaviors.

Ilkka Vuorinen is a postdoctoral researcher in social psychology at Tampere University. His research focuses on the role of psychological and social well-being in addictive behaviors.

Heli Hagfors is a doctoral researcher in social psychology at Tampere University. Her dissertation focuses on gambling motives, problem gambling, and frustatration of the basic psychological needs.

Jussi Palomäki is a cognitive scientist, game enthusiast, and gambling researcher. His current work focuses primarily on gambling harm prevention and the psychology of gaming.

Atte Oksanen is a Professor of Social Psychology and the Vice Dean for Research at the Faculty of Social Sciences at Tampere University, Finland. Oksanen's research focuses on digital technologies, social interaction, crime, and addiction. He is the director of the Emerging Technologies Lab, which conducts social scientific and social psychological research on human behavior in technological environments.