

Sirola, Anu, Kaakinen, Markus, Savolainen, Iina & Oksanen, Atte

Faculty of Social Sciences, Tampere University

Loneliness and Online Gambling-Community Participation of Young Social Media Users

Abstract

Individuals use online communities for social networking and to find similar others. These communities can be attractive for individuals who are dissatisfied with their offline relationships. This article reports two studies analyzing the daily participation in online gambling-communities. In Study 1, self-reported measures were used to examine the role of loneliness, excessive gambling, and Internet use in daily online gambling-community participation. In Study 2, a gambling-related vignette experiment was used to analyze how characteristics of online behavior predict daily online gambling-community participation. Both studies are based on three samples collected among Finnish ($N = 1,200$ and $N = 230$) and U.S. ($N = 1,212$) adolescents and young adults. In Finland and the U.S., daily online gambling-community participation was more likely among compulsive Internet users and individuals who gambled excessively. In Finland, loneliness moderated the effect between gambling problems and daily gambling-community participation, but in the U.S., loneliness had no moderating effect. Preferring pro-gambling to antigambling content also predicted more likely daily online gambling-community participation. Online gambling-communities

are attractive for young individuals who experience gambling problems and are interested in gambling overall.

Keywords: gambling, excessive gambling, loneliness, online communities, Internet, vignette experiment

1. Introduction

Internet and social media have expanded the characteristics of human interaction, as different social networking platforms such as online communities nowadays have a ubiquitous role particularly in young individuals' life. (Boyd, 2014; Keipi, Näsi, Oksanen, & Räsänen, 2017; Kuss & Griffiths, 2017). Online communities and their relevance in individuals' everyday life have been in researchers' interest since the early days of the Internet (Baym, 2000; Preece, 2000; Rheingold, 1993). While individuals' online networks often consist of pre-existing social bonds, it is also possible to search for new contacts and form communities based on shared interests, activities and goals (Boyd & Ellison, 2007). According to Preece (2000, 10), an online community needs enough people to interact with a shared purpose, and a community's norms guide interaction within the community. Although online communities can be formed around an endless variety of shared interests, the need to find similar others online is particularly central for individuals who suffer from psychosocial problems and those who lack meaningful offline relationships and support (Barak, Boniel-Nissim, & Suler, 2008; Csipke & Horne, 2007; Rice et al., 2014).

In this paper, we examine online gambling-community participation from a social psychological perspective by investigating both individual and social factors associated with such participation. Our theoretical framework is grounded on the social psychological theory of loneliness and this paper further follows the theory and tradition laid upon previous research on online communities. The Internet provides a virtually endless environment for gambling and its related activities. In addition to gambling sites, gamblers can seek like-minded others and form online communities around shared gambling interests. In these gambling-related online communities (e.g., discussion forums) gamblers can, for example, share gambling tips and knowledge (Gainsbury & Blaszczynski, 2011; Parke & Griffiths, 2011) or discuss gambling-related problems and recovery (Mudry & Strong, 2013; O'Leary

& Carroll, 2013). Since loneliness is associated with problem gambling among both adolescents and adults (Castrén et al., 2013; Botterill, Gill, McLaren, & Gomez, 2016; Hardoon, Gupta, & Derevensky, 2004; McQuade & Gill, 2012; Petry & Weiss, 2009), and loneliness is often accompanied by high Internet use (Kuss, Griffiths, Karila, & Billieux, 2014), gambling-communities may be appealing to individuals with problematic gambling and those who search for belonging through similar experiences and gambling material online (Sirola, et al., 2018; Wood & Wood, 2009).

Earlier research indicates that actively visiting online gambling-communities is a potential risk factor for problem gambling (i.e., excessive gambling)—especially in adolescence and emerging adulthood (Sirola, Kaakinen, & Oksanen, 2018). Peer-interaction in online gambling-communities can influence gambling behavior by promoting responsible gambling habits, but inaccurate information via shared experiences can also lead individuals to develop cognitive distortions concerning gambling, such as illusion of control (Parke & Griffiths, 2011). Despite of the potential benefits that online communities obtain, they can also foster harmful behavior and attitudes. This is why it is important to gain deeper knowledge on the users of these communities and their motivations for seeking them.

1.1. Loneliness and Excessive Gambling in the Online Era

Humans have a fundamental need to belong (Baumeister & Leary, 1995). Satisfying social relationships thus have a major impact on health and well-being (Heinrich & Gullone, 2006), and social support serves as a buffering factor, both for various psychosocial difficulties and for harms encountered on the Internet (Cohen & Wills, 1985; Kaakinen, Keipi, Räsänen, & Oksanen, 2018; Lee & Goldstein, 2016; Minkkinen et al., 2015; Turja et al., 2017). In contrast, loneliness is an adverse state with harmful consequences across the life span (Cacioppo, Grippo, London, Goossens, & Cacioppo, 2015; Qualter et al., 2015).

Although social isolation can be seen as an objective and quantifiable dimension of social relationships, loneliness is a subjective emotional state of social isolation (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). In other words, the sense of loneliness is driven by the individual's perceived solitude, disconnectedness, and inadequate social relationships, rather than by the individual's actual amount of social contact (Heinrich & Gullone, 2006; Hughes, Waite, Hawkey, & Cacioppo, 2004; Masi, Chen, Hawkey, & Cacioppo, 2011). The essential thought in theories of loneliness is that humans need meaningful contact with others whom they trust and can feel connected to (Cacioppo et al., 2015). Loneliness is associated with increased risk of premature death (Holt-Lunstad et al., 2015), which emphasizes the vital role of meaningful relationships.

Loneliness is an emotionally intense and unpleasant subjective experience that is derived from a perceived deficiency in social relationships (Perlman & Peplau, 1981). In Weiss's (1973) typology, the concept of loneliness is divided into social and emotional loneliness; the former is characterized by a lack of social connections more generally, and the latter refers to a lack of reliable and close relationships such as romantic partnerships. Researchers have supported the theory that these dimensions of loneliness are distinct experiences (DiTommaso & Spinner, 1997; Van Baarsen, Snijders, Smit, & Van Duijn, 2001) but have also found that the characteristics of these dimensions overlap, at least to some extent (Russell, Cutrona, Rose, & Yurko, 1984).

Although loneliness occurs throughout the life span, researchers have found it to be particularly prevalent in late adolescence and early adulthood (Qualter et al., 2015). People in these age groups face many challenges related to the transition to adulthood and are thus vulnerable to loneliness and its adverse effects (Heinrich & Gullone, 2006; Qualter et al., 2015). Among adolescents, loneliness is associated with risky health behaviors such as substance use (Stickley, Koyanagi, Kuposov, Schwab-Stone, & Ruchkin, 2014). Among

adolescents and young adults, loneliness is also a risk factor for many psychosocial difficulties such as depression (Demir & Kutlu, 2016; Matthews et al., 2016) and various forms of addictive behaviors (Bian & Leung, 2015; Kuss et al., 2014), including excessive gambling (Castrén et al., 2013; Hardoon et al., 2004; Khazaal et al., 2017; McQuade & Gill, 2012; Petry & Weiss, 2009).

Excessive gambling, in broad terms, can be defined as an addictive or impulse-control disorder characterized by mental and financial harms caused by gambling. It covers potentially risky, problematic and pathological forms of gambling (Orford, 2001; Saunders, Degenhardt, & Farrell, 2017). Within the medical paradigm, in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013), excessive gambling is labeled “Gambling Disorder” and is classified to the “Substance-Related and Addictive Disorders” (Petry, Blanco, Stinchfield, & Volberg, 2013; Slezcka, Braun, Piontek, Bühringer, & Kraus, 2015). While excessive gambling and Gambling Disorder as defined by the DSM-V are not diagnostically interchangeable, they both describe problem gambling that is compatible in terms of the harms caused to the individual (APA, 2013; Blaszczynski & Nower, 2002). Gambling problems are most common among young adults between the ages of 18 and 24 (Salonen & Raisamo, 2015). Although many countries have age restrictions for gambling, the increase in gambling opportunities, including the rapid rise of online gambling sites, has made gambling a typical activity even among adolescents; the prevalence of gambling problems is increasing in young age groups (Calado, Alexandre, & Griffiths, 2017; Canale, Griffiths, Vieno, Siciliano, & Molinaro, 2016a).

In terms of addictions such as excessive gambling, the sense of loneliness and isolation may be essentially derived from a perceived lack of understanding and support from like-minded others rather than from a lack of social contact per se. Individuals are prone to hide their gambling problems from loved ones and can be reluctant to seek professional help,

partly because of the shame and stigma associated with these issues (Gainsbury, Hing, & Suhonen, 2014; Mudry & Strong, 2013). However, because loneliness is an adverse emotional state, those who suffer from it are motivated to reconnect with people (Qualter et al., 2015). As a result of their perceived loneliness and perceived lack of understanding and support, excessive gamblers may be motivated to seek gambling-related social contacts and supportive interactions through online communities.

The Internet enables the formation of online gambling subcultures and the identity generation therein (O'Leary & Carroll, 2013). On the Internet, it is relatively easy to find others who share similar gambling interests and values; this applies to both those who are interested in or involved in gambling activities and those who have gambling problems and are aiming for recovery. Indeed, the desire for social companionship with like-minded others is a strong motivation for Internet use (Chung, 2013; McKenna & Bargh, 2000; Wang, Jackson, Wang, & Gaskin, 2015). For lonely and socially sanctioned or stigmatized people in particular, the Internet offers a fruitful way to form social ties and construct identity—all with the safeguard of anonymity (McKenna & Bargh, 2000).

Scholars have found that loneliness and deficiency in offline relationships are motivational factors for participation in online communities (Barak et al., 2008; Csipke & Horne, 2007). Through online communication, peers can provide valuable social support (Ali, Farrer, Gulliver, & Griffiths, 2015), which may be particularly central for young individuals with psychosocial problems. Individuals can also use supportive online networks as an alternative to dissatisfying offline relationships (Chung, 2013). According to the social compensation hypothesis, high online presence and a large number of online contacts can compensate for a perceived lack of meaningful social relationships or for a lack of social skills (Hood, Creed, & Mills, 2017; Song et al., 2014; Zywicki & Danowski, 2008). Young

people also prefer online peer support to in-person support when seeking help for difficulties such as mental health problems (Ali et al., 2015).

Despite the social aspects of social media and the potential benefits of online communities, researchers have indicated that social networking in online communities is not necessarily enough to make up for a lack of offline relationships or to reduce feelings of loneliness (Yao & Zhong, 2014). Indeed, high Internet use can have adverse effects, particularly in its excessive forms. Loneliness is associated with Internet addiction (Kuss et al., 2014), and high levels of perceived online social support can lead to excessive Internet use (Hardie & Tee, 2007). In online communities, people may also feel social pressure to actively participate in peer-activity, thus leading to excessive use of the Internet (Turel & Osatuyi, 2017). Extensive use of social communication technologies can even decrease well-being and the sense of social support (Herrero, Urueña, Torres, & Hidalgo, 2017; Kross et al., 2013). Although supportive social interaction and the sense of community in an online environment can enhance positive affect, the quality of online interaction is more important than the number of online contacts (Oh, Ozkaya, & LaRose, 2014). To this effect, Pittman and Reich (2016) indicated that only image-based social media platforms serve to decrease users' sense of loneliness and to increase their positive affect; text-based platforms did not produce the same benefits.

Because social media platforms allow practically any social media user to contribute to the generation of content (Walther & Jang, 2012), the credibility of the shared content may be questionable, and the information shared on online networks may be misleading or even harmful (Custers, 2015; Daine et al., 2013; Huang et al., 2014; Syed-Abdul et al., 2013). Westerwick, Johnson, and Knobloch-Westerwick (2017) found that time spent viewing online health messages had an impact on health attitudes, regardless of the sources' credibility. Moreover, researchers have shown that social media users tend to rely on

information and content that similar people have shared (Flanagin, Hocevar, & Samahito, 2014; Hocevar, Flanagin, & Metzger, 2014; Shin, Van Der Heide, Beyea, Dai, & Prchal, 2017) and that these users also prefer peer experiences to fact-driven information (Oksanen et al., 2015; Syed-Abdul et al., 2013). The social preference for content that similar individuals have shared limits the diversity of information sources (Centola & van de Rijt, 2015), which is particularly worrisome if the content promotes harmful or excessive behavior (Syed-Abdul et al., 2013).

The role of online communities may be particularly central for adolescents and young adults, as they are active online users and tend to identify strongly with online groups (Lehdonvirta & Räsänen, 2011; Mikal, Rice, Kent, & Uchino, 2016). Group processes and social influence in online communities can have an important impact on how users perceive, evaluate, and identify with content (Zhou, 2011). According to the social identity model of deindividuation effects, visually anonymous online communication makes social identities more salient and enhances users' social identification with other, like-minded users and groups; such communication is also a starting point for social influence (Lea, Spears, & de Groot, 2001; Postmes, Spears, Sakhel, & De Groot, 2001). Those who identify strongly with their online in-groups are particularly likely to follow their peers' evaluations of online content (Walther, DeAndrea, Kim, & Anthony, 2010).

Given that online communities often attract young people with psycho-social problems and have a power to influence users' attitudes and behavior, online communities' role in potentially problematic and harm-advocating phenomena is not trivial by any means. In terms of online gambling-communities, internalizing a community's group norms and social identity can affect an individual's information evaluation, as well as his or her attitudes concerning gambling behavior; at its worst, this internalization can foster harmful attitudes and excessive gambling behavior. Examining what motivates young people to seek and

participate in online gambling-communities allows for better understanding the role of social media and online communities in the youth gambling phenomenon.

1.2. Research Overview

In this paper, we examined daily online gambling-community participation and its associated factors in cross-sectional (Study 1) and experimental (Study 2) studies by using three samples consisting of Finnish and U.S. adolescents and young adults. The purpose of Study 1 was to use self-reported measures to assess how loneliness and excessive gambling and Internet use relate to daily online gambling-community participation. In Study 2, we used behavioral measures to further assess how the characteristics of online behavior predict gambling-community participation. That is, whether daily online gambling-community participation is related to a preference for pro-gambling and experience-driven online content, as well as to a propensity for group influence.

Youth gambling is highly prevalent in both Finland and the U.S. (Calado et al., 2017), and cross-cultural research is needed to understand all sides of the phenomenon.

Although cultural differences exist between these two countries; Finland being a small, relatively homogenous country and the U.S. consisting of a wide range of diverse populations, the countries share similar features in terms of youth culture and behavior. Both Finland and the U.S. are technologically advanced Western countries where adolescents and young adults extensively use social media on many kinds of devices. Social media research has pointed out major similarities in social media usage among young people in these countries (Keipi et al., 2017; Näsi et al., 2014). At the same time, Finland and the U.S. are also culturally distinct which make them meaningful for comparison.

Generally, Finns, like their Nordic neighbors, rank high in bridging social capital, but they have lower bonding social capital than, for example, people in the U.S. (Kääriäinen & Lehtonen, 2006). Also, Finns have been traditionally considered as quieter and more reserved

than their American counterparts, which makes them an interesting comparison (Sallinen-Kuparinen et al., 1991). These differences might not, however, apply to adolescents and emerging adults. Based on comparative HBSC survey data, the 15-year-olds in these two countries report equally high on having at least three friends, but Finnish young people spend four or more evenings per week with their friends more often than their American counterparts (Currie et al., 2012, pp. 29–36). In addition to both, the similarities and differences between these countries, it is important to investigate same phenomena in different societies and cultures.

Therefore, it is meaningful to examine daily online gambling-community participation in these two countries. Based on the literature review, we formed the following hypotheses:

- H1: Excessive gambling is associated with daily online gambling-community participation.
- H2: Loneliness is associated with daily online gambling-community participation.
- H3: Loneliness moderates the association between excessive gambling and daily online gambling-community participation.
- H4: Compulsive Internet use is associated with daily online gambling-community participation.
- H5: Daily online gambling-community participation is associated with a preference for experience-driven and pro-gambling content and with a propensity for group influence in online behavior.

Hypotheses 1–4 are tested in Study 1 with cross-sectional data and hypothesis 5 is tested in Study 2 with behavioral measures derived from our vignette experiment.

2. Study 1

2.1. Participants and Procedures

The participants of Studies 1 and 2 comprise of the three independent samples from Finland and the U.S. Participants responded to a YouGamble online survey that we designed to study gambling behavior and social media use from a social psychological perspective. The surveys were nearly identical but had some minor cultural modifications. All the measures reported in this paper were identical across the three studies. We conducted the survey questionnaire using LimeSurvey software and optimized it for both computers and mobile devices.

The participants in the first sample comprised a demographically balanced sample of Finnish participants ($N = 1,200$) aged 15 to 25 ($M = 21.29$, $SD = 2.85$; 50% female). The participants were recruited from a pool of volunteer respondents administrated by Survey Sampling International (SSI) from March to April 2017. SSI is a leading research data company that operates in three continents and manages online panels in numerous countries. SSI rewards some of their study participants with points that can be later exchanged for cash or vouchers. SSI uses a balanced start methodology to manage quotas and achieve data that is consistent and matches the demographic profile of the examined country, thus advancing digital research data collection. The given methodology allowed that the pool of respondents in Sample 1 mirrored all Finnish adolescents and young adults on the sociodemographic measures of age, gender, and geographical region. The sample is very close to current population estimates in terms of age, gender, residential area structure, education and immigrant background (Oksanen, Savolainen, Sirola, & Kaakinen, 2018). The median response time for the survey was 15 min 30 s.

In case of Sample 2, we replicated the data collection by collecting an additional sample from popular Finnish social networking sites in April through June of 2017. On a message board, we gave participants a short introduction to the study and a survey link. These participants were provided with a possibility to participate in a movie ticket draw, as

compensation for their participation. The sample size ($N = 230$) was sufficient to detect effects of $r = \pm.22$ (two-tailed $\alpha = .05$; $\beta = .20$). The participants consisted of Finnish adolescents and young adults aged 15 to 30 ($M = 24.32$, $SD = 3.58$; 53.48% female). The median response time for this sample was 17 min 50 s.

The third sample included U.S. adolescents and young adults ($N = 1,212$) aged 15 to 25 ($M = 20.05$, $SD = 3.19$; 50.17% female). The participants were recruited in January 2018 from a pool of volunteer respondents administrated by SSI. The sample was demographically balanced in terms of age, gender, and living area, as described above. The participants were geographically from 50 different states, with the following regional distribution: Northeast (21.44%), West (20.12%), Midwest (21.94%), and South (36.51%). Comparison of the sample with current population estimates showed good resemblance (Oksanen et al., 2018). The median response time was 14 min 49 s.

The local Academic Ethics Committee approved the research proposal in December 2016, and the committee stated that the research did not pose any ethical problems. We informed all the participants about the study's aims and how the data would be used, and we permitted the participants to withdraw from the study at any time.

2.2. Measures

Daily online gambling-community participation. To examine daily online gambling-community participation, we asked this question: "How often do you use gambling-related discussion forums or communities?" We categorized the answer options (*never*, *seldom*, *daily*, and *many times a day*) as a dummy variable with values 0 (*never* or *seldom*) or 1 (*daily* or *many times a day*).

Excessive gambling. To measure excessive gambling, we used the South Oaks Gambling Screen (SOGS), which is regularly used in studies (both in Finland and worldwide) when screening for pathological gambling behavior (Castrén et al., 2013; Edgren et al., 2016;

Salonen & Raisamo, 2015). The SOGS comprises of 20 questions. We used the original English version of the SOGS (Lesieur & Blume, 1987) for the U.S. sample, and the Finnish translation (Salonen & Raisamo, 2015) for the Finnish sample. Additionally, we did some minor cultural modifications to the test items. The score range was from 0 to 20, higher scores indicating problem gambling. The scale had good internal consistency in Study 1 ($\alpha = .89$) and excellent internal consistency in Study 2 ($\alpha = .90$) and Study 3 ($\alpha = .90$). The scale was standardized for the multivariate analyses.

We use the SOGS as a continuous measure in the analysis, but we have provided the suggested estimates of non-problematic gamblers (SOGS 0–2), at-risk-gamblers (SOGS=3–7) and probable pathological gamblers (≥ 8) (for the SOGS cut-off-scores, see Goodie et al. 2013).

Sense of loneliness. We measured sense of loneliness with the Three-Item Loneliness Scale, which was originally developed to assess an overall sense of loneliness in large-scale surveys. This scale's results are comparable with studies that use full loneliness measures (Hughes et al., 2004). The three items were as follows:

- “How often do you feel that you lack companionship?”
- “How often do you feel left out?”
- “How often do you feel isolated from others?”

The answer options were 1 (*hardly ever*), 2 (*some of the time*), and 3 (*often*). The scale had good internal consistency, with Cronbach's α coefficients of .83 in Study 1, .80 in Study 2, and .82 in Study 3. For this analysis, we summed the scores for the three questions, with a higher score indicating a higher sense of loneliness. Finally, the measure was standardized for the multivariate analyses.

Compulsive Internet use. We measured compulsive Internet use by using the Compulsive Internet Use Scale (Meerkerk, Van Den Eijnden, Vermulst, & Garretsen, 2009),

which consists of 14 items about excessive Internet use. The response options ranged from 0 (*never*) to 4 (*very often*), with higher scores indicating more compulsive Internet use. The scale had excellent internal consistency, with Cronbach's α coefficients of .93 in Study 1, .92 in Study 2, and .95 in Study 3. This measure was then standardized for further analyses.

Sociodemographic controls. The used sociodemographic controls included gender, age, housing arrangement and Not in Employment, Education or Training (NEET) status. These control variables are commonly recognized as having an important influence on young people's lives, and we expected them to be associated with both loneliness and daily online gambling-community participation. For example, discussion on NEET status has emphasized its damaging effects, such as vulnerability and social exclusion, during young people's transition to adulthood (Bynner & Parsons, 2002; Furlong, 2006). Housing arrangement was measured with a dummy variable indicating whether the respondent was currently living alone (1) or according to some other housing arrangement (0). The NEET status was measured with a dummy variable indicating whether the respondent was currently unemployed or participating in education or training (0 = employed or participating in education or training, 1 = NEET).

2.3. Statistical Techniques

Our statistical analyses included both descriptive analysis and multivariate logistic regression analysis on daily online gambling-community participation. In the descriptive analysis, we calculated the mean values and standard deviations for the continuous variables, as well as the frequencies and percentages for the categorical variables. We conducted logistic regression analyses in two steps: In Model 1, we included the control variables (age, gender, housing arrangements, and the NEET status), loneliness, excessive gambling, and compulsive Internet use. In Model 2, we added the term for the interaction between loneliness and excessive gambling to assess the hypothesized moderation effect. Analyses were

conducted with the statistical software Stata (version 15.1) and standard errors were estimated using robust (sandwich) estimator. For all models, we reported odds ratios (with 95% confidence intervals), standard errors, and values of the z statistic and p . We used the 95% confidence interval from Sample 1 (a demographically balanced Finnish sample) to test whether the found associations could be replicated with a smaller Finnish sample (Sample 2; for similar approach for replication, see Patil, Peng, & Leek, 2016).

2.4. Results

According to this study's descriptive findings (Table 1), daily online gambling-community participation was relatively rare in all the samples, with the frequency of active users ranging from 4% in Sample 1, 8% in Sample 2 and 7% in Sample 3.

Logistic regression analysis on daily online gambling-community participation is reported in Table 2. Excessive gambling was associated with daily online gambling-community participation in Samples 1, 2, and 3 (Table 2), thus supporting our first hypothesis. In Model 1, the odds ratio for excessive gambling was 1.74 in Sample 1 ($z = 6.41$, $p < .001$), 1.73 in Sample 2 ($z = 2.68$, $p = .007$), and 2.06 in Sample 3 ($z = 7.80$, $p < .001$). Loneliness, in turn, was not associated with gambling-community participation in any of the samples, leaving the second hypothesis unsupported. However, loneliness did moderate the association between excessive gambling and daily online gambling-community participation in Sample 1, as the interaction term between loneliness and excessive gambling was positive and significant ($OR = 1.20$, $z = 2.74$, $p = .006$). In Sample 2, the moderation effect was replicated in the sense that the positive interaction term was within Sample 1's 95% confidence interval ($OR = 1.19$, $z = 0.82$, $p = .415$). However, this effect was not statistically significant in Sample 2, which had a substantially smaller amount of observations. In both Sample 1 and Sample 2, the odds ratio for excessive gambling was higher in case of those

who reported higher loneliness. In Sample 3, the interaction term was not significant and was not within Sample 1's 95% confidence interval ($OR = 0.88$, $z = -1.22$, $p = .222$). Thus, the third hypothesis was supported only in the Finnish studies.

Compulsive Internet use was associated with more likely daily online gambling-community participation in both Sample 1 ($OR = 1.49$, $z = 2.33$, $p = .020$) and Sample 3 ($OR = 1.68$, $z = 3.94$, $p < .001$). In Sample 2, compulsive Internet use was not associated with daily online gambling-community participation and was outside Sample 1's 95% confidence interval ($OR = 0.72$, $z = -1.00$, $p = .318$). Consequently, our fourth hypothesis on compulsive Internet use and daily gambling-community site participation was mostly supported.

Of the covariates, only gender was related to daily online gambling-community participation in all three samples. The odds ratio for female participants varied: 0.17 ($z = -3.47$, $p < .001$) in Sample 1; 0.06 ($z = -2.58$, $p = .010$) in Sample 2; and 0.43 ($z = -2.94$, $p = .003$) in Sample 3. Age, housing arrangements, or NEET status did not associate with daily gambling-community participation in any of our samples.

3. Study 2

3.1. Participants and Procedures

Our second study utilized the same dataset as in Study 1.

3.2. Measures

Daily online gambling-community participation. Study 2 utilized the same dependent variable as Study 1.

Vignette experiment. The respondents first filled in the section concerning their background factors (e.g., age and gender) and their type and frequency of social media use. After that, we randomly assigned the respondents into either a salient group-identity condition or a control condition. For the salient group-identity condition, we told the

respondents that they had been assigned to Group C, consisting of respondents who gave similar answers to the previous questions. We gave the respondents in the control condition no group information.

In the vignette experiment, we showed the respondents vignette scenarios concerning gambling-related social media content and asked them to indicate how they would react (“like,” “dislike,” or “no reaction”) to such content in a real social media setting. In the vignettes, we showed the respondents a manipulated distribution of other respondents’ earlier reactions. In half of the vignettes, a strong majority (about 85%) of the earlier respondents had chosen “dislike”; the majority had chosen “like” in the other half of the vignettes. For those in the salient identity condition, we framed this distribution as the reactions of in-group members, but for those in the control condition, we framed the distribution simply as the reactions of other respondents. We also manipulated the stance toward gambling that was presented in the vignettes. In half of the vignettes, the content was pro-gambling (focused on the upsides of gambling, such as entertainment); in the other half, the content was antigambling (focused on gambling-related harms, such as gambling problems). The third manipulated factor was the narration of the content. Half of the vignettes had experience-driven (first-person) narration, and the other half had fact-driven (third-person) narration. For the exact manipulations, see the English-translated vignettes in the Appendix.

This $2 \times 2 \times 2$ within-subject factorial design resulted in eight vignette scenarios; the vignettes were partitioned into two sets so that each participant saw four scenarios. We designed this factorial structure such that each option (pro-gambling or antigambling content; experience-driven or fact-driven narration) was disliked by the majority of previous respondents once (Atzmüller & Steiner, 2010). Thus, the group, overall, did not favor any form of gambling orientation or narration.

After each vignette, we presented the respondents with six follow-up questions that asked them to assess how they would react to the presented vignette content. These questions included items such as “How likely would you find the message interesting?” and “How likely would you seek similar content online in the future?” The response scale for these items was from 1 (*not at all likely*) to 10 (*very likely*). We summed the responses to these follow-up questions to form composite variables (with a range of 6–60), thus measuring the respondents’ overall interest in the presented vignette content. We then used these composite variables to calculate the behavioral measures.

We calculated the preference for pro-gambling content as the sum of the positive reactions in the pro-gambling vignettes minus the sum of the positive reactions in the antigambling vignettes. Thus, higher values indicate that a respondent reacted more positively to the pro-gambling vignettes, and lower values indicate a preference for antigambling vignettes. We calculated the group influence and the preference for experience-driven online content in a similar manner. For the group influence, higher values indicate a more positive reaction to the vignettes than the majority of previous respondents had liked. Higher values in experience preference indicate a preference for the experience-driven vignettes instead of the fact-driven ones (for a similar approach to behavioral measurement in vignette experiments, see Atzmüller & Steiner, 2010; Bergh, Akrami, Sidanius, & Sibley, 2016). The internal consistency of this measure was very high as the Cronbach's Alpha estimates ranged from .92 to .93 in Sample 1, from .89 to .94 in Sample 2, and from .95 to .97 in Sample 3. All behavioral measures were standardized for the multivariate analyses.

3.3. Statistical Techniques

In Study 2, we used a statistical approach similar to Study 1, except for our logistic regression analysis including only one model. In the logistic regression model, daily online gambling-community participation was used as a dependent variable and our behavioral

measures of pro-gambling preference, group influence, and experience preference were used as independent variables. In our analysis, standard errors were estimated using robust (sandwich) estimator. Here again, odds ratios (with 95% confidence intervals), standard errors, and values of the z statistic and p are reported and 95% confidence interval from Sample 1 are used to test the replication of the results in Sample 2.

3.4. Results

Study 2 results partly confirmed our fifth hypothesis. In all the samples, the respondents preferred antigambling content, as the measures of pro-gambling preference were (before standardizing) -5.23, -6.98, and -4.53 in the Finnish Samples 1, 2, and the US Sample 3, respectively (Table 3). The respondents reacted more positively toward content that the majority of previous respondents had liked, as the group influence measure was positive in all the samples: 1.81 in Sample 1, 1.05 in Sample 2, and 2.00 in Sample 3 (values before standardizing). In addition, the participants evaluated the experience-driven content less positively than the fact-driven content, as the experience preference measures were -1.50, -1.61, and -1.93 in Samples 1, 2, and 3, respectively (values before standardizing).

Logistic regression analysis on daily online gambling-community participation is reported in Table 4. In all three samples, a preference for pro-gambling content was associated with increased likelihood of daily gambling-community participation. The odds ratio for pro-gambling preference was 1.53 in Sample 1 ($z = 2.01, p = .045$), 1.94 in Sample 2 ($z = 2.19, p = .029$) and 1.29 in Sample 3 ($z = 2.28, p = .022$). The group influence was not associated with daily gambling-community participation in any of our samples. We added the interaction between the group influence and the experimental condition (group condition = 0, control = 1, not reported in the tables) to test whether the association between daily gambling-community participation and group influence differed for those in the group

condition and those in the control condition. The interaction term was not significant in any of the samples (Sample 1: $OR = 0.74$, $z = -0.79$, $p = .432$; Sample 2: $OR = 0.77$, $z = -0.55$, $p = .581$; Sample 3: $OR = 1.30$, $z = 1.35$, $p = .177$). Daily gambling-community participation was not associated with experience preference in any of the samples. Overall, our experiment-based behavioral measures did not predict daily online gambling-community participation as well compared to the self-reported measures concerning social relations and addictive behaviors (Pseudo R^2 coefficients in Table 2 and Table 4).

4. Discussion

In this paper, we examined daily online gambling-community participation among Finnish and U.S. adolescents and young adults (ages 15–30), as well as the associated factors. Drawing on the social psychological theory of loneliness (e.g., Baumeister & Leary, 1995; Perlman & Peplau, 1981) and established theoretical framework on online communities (e.g., Boyd & Ellison, 2007; Byum, 2000; Preece, 2000; Rheingold, 1993), our aim was to gain understanding on the relevance of online gambling-communities to their active users as well as identify some of the potentially motivating factors in seeking such communities. In Study 1, we assessed how excessive gambling, loneliness, and the characteristics of online behavior relate to daily online gambling-community participation. In Study 2, we used behavioral measures to further assess whether daily gambling-community participation is related to a preference for pro-gambling and experience-driven online content, as well as to a propensity for group influence.

There were differences and similarities between the three independent samples. Excessive gambling was associated with daily online gambling-community participation in all three samples, but no association between loneliness and daily online gambling-community participation was found. However, in Finland, loneliness moderated the association between excessive gambling and daily online gambling-community participation.

Moreover, the association between daily gambling-community participation and excessive gambling was higher among respondents who reported stronger loneliness. In the U.S., however, this moderation effect had no statistical significance.

Compulsive Internet use was associated with daily online gambling-community participation in both Finland (although only in the larger Sample 1) and the U.S. Moreover, in all three samples, the male gender was significantly associated with daily online gambling-community participation. This is in line with what researchers have shown: Men gamble more often and experience more gambling problems than women do (Hing, Russell, Tolchard, & Nower, 2016). In all the samples, those who visited online gambling-communities on a daily basis preferred pro-gambling content. Preference for experience-driven content and propensity to group influence, however, were not associated with daily gambling-community participation in any of our samples.

In the Finnish samples, the study's results concerning the moderating role of loneliness are in line with those of past studies, indicating associations between loneliness and excessive gambling (Castrén et al., 2013; Hardoon et al., 2004; McQuade & Gill, 2012; Petry & Weiss, 2009), as well as between loneliness and Internet use (Kuss et al., 2014). Moreover, results of the Finnish samples support the earlier research on the role that online communities play for lonely individuals who experience psychosocial problems (Barak et al., 2008; Csipke & Horne, 2007; Rice et al., 2014).

The different results regarding loneliness in the Finnish and U.S. samples potentially reflect social and cultural differences. In Finland, daily participation in online gambling-communities was likely only among those who gambled excessively and reported loneliness, while in the U.S., problem gamblers with satisfactory social connections also accessed online gambling-communities. Thus, it appears that, in Finland, participants use gambling-related online ties from these online communities to partially compensate for a lack of meaningful

social relationships. In the U.S., however, online gambling-communities can serve other, more individualistic, purposes—or even directly gambling-related ones. More quantitative and qualitative research is needed to better understand the cultural differences regarding loneliness, as well as the other factors that can motivate daily online gambling-community participation.

Although people today are becoming increasingly connected via technology, several concerns remain. Paradoxically, extensive use of social communication technologies can decrease a person's feelings of social support (Herrero et al., 2017), and strongly identifying with online communities and peer networks may lead to compulsive Internet use (Turel & Osatuyi, 2017). In terms of excessive gambling and other addictions, it is important to notice that social support from online communities does not necessarily reduce feelings of loneliness (Yao & Zhong, 2014); perhaps even more importantly, online networks can foster harmful attitudes and habits, as well as allow for the sharing of misleading and incorrect information among vulnerable individuals (Syed-Abdul et al., 2013). Thus, the potential risks of online communities must be addressed. For example, in the field of eating disorders, it is well-known that online eating-disorder communities often promote excessive dieting and normalize unrealistic body images (Custers, 2015). Similarly, online gambling-communities can both cause users to maintain or develop cognitive biases and lead to the normalization of excessive gambling (Parke & Griffiths, 2011; Sirola et al., 2018). These risks derogate the potential benefits of online communities.

Online gambling-communities such as poker forums can act as safe spaces for their users; this also allows for the formation of a mutual identity (O'Leary & Carroll, 2013). Because social identification is a starting point of social influence, it is not trivial what the online context is that a user identifies with, and what are the community's interests and norms concerning gambling. Although it is unrealistic and unnecessary to fully prohibit Internet use

among adolescents and young adults, some level of monitoring of online gambling platforms may be required to minimize the potentially harmful impacts of online communities.

Despite the potential risks and harms derived from online communities, Internet-based interventions and anonymous support groups may also be beneficial in overcoming addictions such as problem gambling (Mudry & Strong, 2013). Problem gamblers generally tend to prefer online support to formal in-person support (Gainsbury & Blaszczynski, 2011; Gainsbury et al., 2014; Mudry & Strong, 2013). Anonymous nature of online platforms makes it easier to express oneself, while being free of stigma and shame often associated with problem gambling (Wood & Wood, 2009). In a recent study, there were promising results of web-based intervention for high school students in reducing gambling problems (Canale et al., 2016b). A deeper understanding of the group dynamics and processes in online communication is needed to better understand the attraction and significance of online communities, in order to utilize these aspects in developing effective online interventions for young people.

In terms of youth gambling, the significance of offline support should also be addressed. Offline social support mitigates many of the harmful effects of both offline and online environments (Cohen & Wills, 1985; Kaakinen et al., 2018; Lee & Goldstein, 2016; Minkkinen et al., 2015; Turja et al., 2017), so young problem gamblers should particularly focus on reinforcing their meaningful offline relationships. Recent research shows that support from close adults, such as parents and teachers, is a significant protective factor in adolescent gambling problems (Allami, Vitaro, Brendgen, Carbonneau & Tremblay, 2018; Canale et al., 2017; Elgar et al., 2018; Petry & Weiss, 2009; Räsänen, Lintonen, Tolvanen & Koivu, 2016). In addition, support from peers, such as friends and classmates, may hold important value in prevention and treatment of youth gambling problems (Elgar et al., 2018; Hardoon et al., 2004; Petry & Weiss, 2009; Savolainen, Sirola, Kaakinen & Oksanen, 2018).

Providing young individuals with understanding and support would lessen their need to seek support online, and further, shelter from the potential risks of online gambling-communities.

Our results help to understand the role of online gambling-communities in the youth gambling phenomenon. Although the majority of adolescents and young adults may not find online gambling content to be interesting, those who are interested in (or excessively involved in) gambling activities find it relatively easy to use the Internet to identify gambling-related platforms and like-minded individuals. This can be particularly worrisome for individuals who lack meaningful offline relationships, and who compensate the lack of them by strongly identifying with online communities and the social networks therein. Replacing offline relationships with gambling-related online ties can narrow down individual's worldview and motivate to engage in problematic gambling behavior and excessive Internet use. This study's results indicate the presence of some cultural differences in terms of motivation to seek out online gambling-communities, which in turn emphasizes the need for further cross-cultural research.

In this paper, we focused on online gambling-communities, but it is important to examine the relevance of online communities in terms of other phenomena as well. The potential of online communities to connect a large number of people around shared interests, activities and goals may hold many benefits, but also risks, particularly within problematic phenomena such as youth gambling. Through mechanisms of anonymity, social identification and social influence, online communities can be a significant influence in terms of attitudes and behavior, particularly for young people who use social media extensively. Since social media platforms are constantly developing and new types of online communities emerge, research is needed to understand emerging group processes within the communities, and communities' significance in their users' everyday life. This would also help us understand how online communities' favorable aspects, such as socio-emotional support and sense of

belonging, could be utilized in a harm-reductive manner among individuals suffering from loneliness or engaging in problematic behaviors such as excessive gambling.

4.1. Limitations

Notwithstanding the strengths of the study, we acknowledge several limitations within it. First, this study was cross-sectional, so we could not examine any causal mechanisms. In future studies, it is necessary to study online gambling-community participation and the associated factors using longitudinal settings. Secondly, this study only focused on Finnish and U.S. adolescents and young adults; more research is needed to compare these results with those of other age groups and other cultural contexts. Third, the effect sizes were relatively low in Study 2, despite being statistically significant across the samples. Especially the pseudo coefficients of determination (R^2) demonstrate this. Finally, the use of the SOGS as a measure for excessive gambling has some limitations, as it was originally developed for clinical settings and is not fully synonymous with the DSM-V criteria for pathological gambling (Stinchfield, 2002). However, despite of its limitations, the SOGS is a widely used measure for problematic gambling in survey research and it showed good internal consistency and reliability within all our samples. Finally, this study examined only participation frequency in online gambling-communities. Future studies should examine participation activity in more depth, such as whether actively or passively participating in and contributing to these communities have differing associations, for example, in terms of problem gambling diagnosis or loneliness.

5. Conclusion

Online gambling-communities are particularly attractive for young individuals who experience gambling problems and for those who are generally interested in gambling. In this study, loneliness moderated the association between excessive gambling and daily online

gambling-community participation in Finland; among problem gamblers, those who reported loneliness were most likely to participate in these online communities. However, this moderation was not found in the U.S. context, indicating the presence of cultural differences. Although some online gambling-communities can serve as an aid for problem gamblers, this study's results underlined the risks involved. More research is needed to improve the understanding of the group dynamics and processes of online gambling-communities, as well as to identify the potential benefits and risks of participating in these communities. In this paper, we offer a better understanding of the factors that motivate online gambling-community participation, and the results encourage further exploration of the phenomenon and its cultural differences, particularly in terms of perceived loneliness.

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Table 1

Descriptive Statistics for Study 1 variables

Continuous Variables	Range	Sample 1 (Fin, N = 1,200)		Sample 2 (Fin, N = 230)		Sample 3 (US, N = 1,212)	
		M	SD	M	SD	M	SD
Age	15 to 25/30	21.29	2.85	24.32	3.58	20	3.19
Loneliness*	0 to 6	2.53	1.78	3.12	1.85	1.94	1.20
Compulsive Internet use*	0 to 56	18.79	11.13	18.47	11.12	21.73	13.54
Categorical Variables	Coding	n	%	n	%	n	%
Daily gambling-community participation	no	1,155	96.25	148	92.5	1,125	92.82
	yes	45	3.75	19	8.26	87	7.18
Gender	male	600	50	107	46.52	604	49.83
	female	600	50	123	53.48	608	50.17
Living alone	no	804	67	130	56.52	1076	88.78
	yes	396	33	100	43.48	136	11.22
NEET	no	1060	88.33	153	66.52	1068	88.12
	yes	140	11.67	77	33.48	144	11.88
SOGS cut-off score	0-2	946	78.83	174	75.65	1011	83.42
	3-7	210	17.50	37	16.09	157	12.95
	≥8	44	3.67	19	8.26	44	3.63

Note. * = descriptive statistics before standardizing, the SOGS is used as a continuous variable in logistic regression analyses. The SOGS cut-off scores used were *no problem gambling* (0–2), *at risk gambling* (3–7) and *probable pathological gambling* (≥8).

Table 2

Logistic Regression Analysis on daily online gambling-community participation (Study 1)

	Sample 1 (Fin)						Sample 2 (Fin)						Sample 3 (US)					
	OR	SE	z	p	95% CI		OR	SE	z	p	95% CI		OR	SE	z	p	95% CI	
Model 1																		
Female	0.17	0.09	-3.47	.001	0.06	0.46	0.06	0.07	-2.58	.010	0.01	0.51	0.43	0.12	-2.94	.003	0.25	0.76
Age	1.11	0.07	1.58	.114	0.98	1.25	0.95	0.06	-0.71	.477	0.83	1.09	1.08	0.05	1.66	.098	0.99	1.18
Living alone	0.95	0.36	-0.14	.892	0.45	2.01	1.89	1.07	1.12	.262	0.62	5.74	1.51	0.47	1.32	.185	0.82	2.76
NEET	0.39	0.28	-1.33	.184	0.10	1.56	0.23	0.20	-1.65	.099	0.04	1.32	0.91	0.39	-0.23	.818	0.39	2.11
Compulsive Internet use	1.49	0.25	2.33	.020	1.06	2.08	0.72	0.23	-1.00	.318	0.39	1.36	1.68	0.22	3.94	<.001	1.30	2.17
Loneliness	1.07	0.19	0.41	.681	0.76	1.51	0.99	0.31	-0.04	.968	0.53	1.83	0.86	0.12	-1.09	.274	0.66	1.13
Excessive gambling	1.74	0.15	6.41	<.001	1.47	2.07	1.73	0.35	2.68	.007	1.16	2.57	2.06	0.19	7.80	<.001	1.72	2.46
Constant	0.01	0.01	-3.92	<.001	0.00	0.08	0.50	0.85	-0.41	.683	0.02	14.44	0.01	0.01	-4.63	<.001	0.00	0.08
Pseudo R ²	.19						.28						.25					
Model 2																		
Female	0.18	0.09	-3.35	.001	0.07	0.49	0.06	0.07	-2.56	.010	0.01	0.52	0.42	0.12	-2.96	.003	0.24	0.75
Age	1.11	0.07	1.61	.107	0.98	1.25	0.96	0.07	-0.57	.568	0.84	1.10	1.08	0.05	1.67	.094	0.99	1.18
Living alone	1.02	0.39	0.06	.949	0.49	2.15	1.90	1.07	1.14	.255	0.63	5.75	1.50	0.46	1.34	.181	0.83	2.74
NEET	0.38	0.27	-1.35	.176	0.09	1.54	0.23	0.21	-1.61	.108	0.04	1.38	0.89	0.38	-0.26	.792	0.38	2.07
Compulsive Internet use	1.53	0.27	2.43	.015	1.09	2.16	0.69	0.24	-1.07	.284	0.35	1.36	1.68	0.22	3.90	<.001	1.30	2.18
Loneliness	0.87	0.19	-0.66	.511	0.57	1.32	0.94	0.29	-0.22	.829	0.51	1.72	0.92	0.13	-0.61	.542	0.69	1.22
Excessive gambling	1.75	0.16	6.22	<.001	1.47	2.09	1.81	0.37	2.94	.003	1.22	2.69	2.12	0.20	7.85	<.001	1.76	2.56
Lonel.*excessive gambling	1.20	0.08	2.74	.006	1.05	1.37	1.19	0.26	0.82	.415	0.78	1.83	0.88	0.09	-1.22	.222	0.71	1.08
Constant	0.01	0.01	-3.95	<.001	0.00	0.07	0.38	0.67	-0.55	.582	0.01	12.01	0.01	0.01	-4.64	<.001	0.00	0.08
Pseudo R ²	.20						.28						.25					

Note. Lonel. = loneliness.

Table 3

Descriptive Statistics for Study 2 variables

Continuous Variables	Range	Sample 1 (Fin, <i>N</i> = 1,200)		Sample 2 (Fin, <i>N</i> = 230)		Sample 3 (US, <i>N</i> = 1,212)	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pro-gambling preference*	-108 to 108	-5.23	16.04	-6.98	19.85	-4.53	20.51
Group influence*	-108 to 108	1.81	11.32	1.05	9.64	2.00	12.99
Experience preference*	-108 to 108	-1.50	10.88	-1.61	10.70	-1.93	12.72

Note. * = descriptive statistics before standardizing

Table 4

Logistic Regression Analysis on daily online gambling-community participation (Study 2)

	Sample 1 (Fin)						Sample 2 (Fin)						Sample 3 (US)					
	<i>OR</i>	<i>SE</i>	<i>z</i>	<i>p</i>	95% CI		<i>OR</i>	<i>SE</i>	<i>z</i>	<i>p</i>	95% CI		<i>OR</i>	<i>SE</i>	<i>z</i>	<i>p</i>	95% CI	
Pro-gambling preference	1.532	0.325	2.01	.045	1.01	2.322	1.937	0.585	2.19	.029	1.072	3.501	1.286	0.142	2.28	.022	1.036	1.596
Experience-preference	0.937	0.143	-0.43	.670	0.695	1.264	0.743	0.137	-1.6	.109	0.517	1.068	0.978	0.107	-0.2	.838	0.789	1.212
Group influence	0.844	0.14	-1.02	.307	0.61	1.168	1.384	0.333	1.35	.176	0.864	2.216	0.911	0.087	0.97	.330	0.756	1.099
Constant	0.036	0.006	-19.74	<.001	0.025	0.049	0.071	0.022	8.71	<.001	0.039	0.129	0.073	0.008	22.6	<.001	0.058	0.092
Pseudo <i>R</i> ²	.02						.08						.01					

Appendix 1: English-Translated Vignettes and Manipulations Used in the Survey Experiment

Positive stance on gambling [experience-driven] [fact-driven]

[Me and many of my friends] [According to a recent report, 80% of the Finnish people] gamble. Gambling brings [me enjoyment] [enjoyment], and it [has brought significant benefits to me and my family's well-being] [brings significant benefits to the society and people's well-being]. Behind the following link, you can read more [about Finnish people's experiences] [research findings] on gambling.

Negative stance on gambling [experience-driven] [fact-driven]

[Me and many of my friends] [According to a recent report, over 120,000 Finnish people] suffer from gambling problems. Gambling causes [me problems] [problems], and it [has caused significant damage for me and my family's well-being] [causes significant damage for the society and people's well-being]. Behind the following link, you can read more [about Finnish people's experiences] [research findings] on gambling.