



Full length article

## The role of online group norms and social identity in youth problem gambling

Iina Savolainen<sup>a,\*</sup>, Atte Oksanen<sup>a</sup>, Markus Kaakinen<sup>b</sup>, Anu Sirola<sup>a</sup>, Izabela Zych<sup>c</sup>, Hye-Jin Paek<sup>d</sup>

<sup>a</sup> Faculty of Social Sciences, Tampere University, 33014, Tampere University, Tampere, Finland

<sup>b</sup> Institute of Criminology and Legal Policy, University of Helsinki, PL 24 (Unioninkatu 40), 00014, University of Helsinki, Finland

<sup>c</sup> Department of Psychology, University of Córdoba Avda. San Alberto Magno S/n, 14004, Córdoba, Spain

<sup>d</sup> Department of Advertising & Public Relations, Hanyang University, Ansan, South Korea

### ARTICLE INFO

#### Keywords:

Youth  
Online interaction  
Online groups  
Problem gambling  
Social identity  
Social norms

### ABSTRACT

The Internet and technologies have increased gambling opportunities globally, normalizing gambling among young individuals. Youth are active Internet users and susceptible to group norms, but little is known about group behavior and norms in online interaction. This study examined if following perceived majority opinions about gambling content (i.e., *gambling norms*) in online interaction is associated with youth problem gambling. Participants were 15–25-year-old youths in Finland ( $n = 1200$ ; 50% female), South Korea ( $n = 1192$ ; 50.42% female), Spain ( $n = 1212$ ; 48.76% female), and the United States ( $n = 1212$ ; 50.17% female). The participants took an online survey including a vignette experiment. In the vignette experiment, half of the participants were assigned to an in-group condition. The participants saw simulated gambling-themed social media messages with manipulated majority reactions. Norm conformity online was assessed using a within-person calculation. Norm conformity online was associated with youth problem gambling in all countries. In South Korea, this association was moderated by in-group norm source. The results indicate that young people who engage in problematic gambling may be more susceptible to conforming to perceived gambling norms online, but cultural differences exist. Intervention strategies should utilize educative online programs providing young problem gamblers accurate information about gambling.

### 1. Introduction

Gambling has gained popularity as a recreational activity among young individuals across the world (Molinario et al., 2018; Orford, 2011). One reason for this popularity is the increased availability of gambling opportunities afforded by the Internet and rapid growth of technology (Canale et al., 2016; Gainsbury et al., 2015). However, the availability of gambling is not the only risk factor explaining youths' increased gambling activity, but different social processes taking place online might play a role.

Social identity theory (SIT) is a social psychological theory (Tajfel & Turner, 1979) which suggests that different behaviors are tied to grouping behavior and social identities offered by one's in-groups. Social norms are often derived from these in-groups and provide guidelines for normative and desired behavior (Turner, 1991). Past research has

examined the role of social identity and group norms in health behavior and addiction (Bathish et al., 2017; Foster et al., 2014; Neighbors et al., 2007). However, they have not been utilized in youth problem gambling research applied to the online context. Youth behaviors are often bound to the contexts of time, environment, and culture (Furlong et al., 2011). The challenge of today's modern times is the development and advancement of technology, but also the emergence of numerous social media platforms, which allow youth to interact and encounter excessive amounts of content online (Best et al., 2014; Moreno et al., 2011). Interactions that used to take place face-to-face are becoming increasingly digital. This interactional development has changed not only the social structure of the existing youth culture, but also the traditional way in which human interaction and social influence take place. Given that youth spend a significant amount of their time online, it is important to consider that they may adopt behavior models from and be influenced

\* Corresponding author.

E-mail addresses: [iina.savolainen@tuni.fi](mailto:iina.savolainen@tuni.fi) (I. Savolainen), [atte.oksanen@tuni.fi](mailto:atte.oksanen@tuni.fi) (A. Oksanen), [markus.kaakinen@helsinki.fi](mailto:markus.kaakinen@helsinki.fi) (M. Kaakinen), [anu.sirola@tuni.fi](mailto:anu.sirola@tuni.fi) (A. Sirola), [izych@uco.es](mailto:izych@uco.es) (I. Zych), [hjpaek@gmail.com](mailto:hjpaek@gmail.com) (H.-J. Paek).

<https://doi.org/10.1016/j.chb.2021.106828>

Received 16 July 2020; Received in revised form 8 April 2021; Accepted 11 April 2021

Available online 14 April 2021

0747-5632/© 2021 The Author(s).

Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

by seemingly normative actions in online settings.

Drawing on the social psychological theories of social identity and social norms, this cross-national research comparing data from Finland, South Korea, Spain, and the United States, investigates how the well-established social processes of social identity and group norm conformity function when interaction is virtual. More specifically, this study investigates if youth conform to perceived norms about gambling when the perceived norms are observed in online interactions and whether this conformity is related to youth problem gambling. In addition, it investigates if the norm-source (in-group) moderates the relationship between norm conformity and problem gambling. Applying these traditional social psychological theories to the virtual context adds a novel perspective to investigating problem gambling by youth.

## 2. Overview of past literature

### 2.1. Youth and gambling

Participating in gambling activities is popular among young individuals even though gambling is illegal for minors (those <18–21 years of age in the United States, <18 years of age in Finland, South Korea, and Spain) (Cantell et al., 2018; European Casino Association, 2017; National Research Council, 1999). New gambling technologies and Internet gambling have increased gambling opportunities and made different forms of gambling prevalent and accessible even for the youngest individuals (Blinn-Pike et al., 2010; Gainsbury et al., 2015). Research further indicates that different online communities are formed around gambling and the interactions and perceived normative activities within them may encourage youth gambling practices (Griffiths, 2003; Sirola et al., 2018, 2020). This manifests in increased youth gambling problems around the globe.

Recent studies show that young problem gamblers are more susceptible to online gambling and from 0.2% to 12% of 11 to 24-year-old youths worldwide can be considered problem gamblers (Calado et al., 2016). Problem gambling is commonly defined as uncontrollable or compulsive gambling that has adverse consequences for the individual, their family, and the community (Neal et al., 2005; Welte et al., 2015). Thus, problem gambling represents a behavioral addiction that refers to diminished control over a behavior that offers a short-term reward often on the expense of long-term well-being. A broad body of research suggests that behavioral addictions resemble substance abuse-related addictions with respect to, for example, neurobiological mechanisms and tolerance, and that problem gambling shows a significant co-occurrence (comorbidity) with substance use disorders (Grant et al., 2010).

Past research has identified several risk-factors of youth problem gambling, including personality characteristics, especially impulsivity (Oksanen et al., 2021), sensation seeking (Dowling et al., 2017), and social influence from family and peers (Shead et al., 2010). Youth is concurrently accompanied by a sense of invulnerability and strength (Lapsley & Hill, 2010), which is connected to risky behaviors and may negatively reflect on young individuals' self-esteem (Hill et al., 2012). Given the characteristics of youth, it makes sense that such risk behavior as gambling is appealing to young individuals. It brings excitement and has entertainment value, on top of the possibility to acquire wealth without extraordinary skill or needing to invest much effort into it (Derevensky & Gilbeau, 2015). Yet the harms of problem gambling exceed its perceived benefits, as problem gambling often leads to economic difficulties (Oksanen et al., 2018) and disrupted social relationships (Splevins et al., 2010). Problem gambling has been also associated with increased substance use (Brunelle et al., 2012), depression (Potenza et al., 2011), and psychotic and internalizing disorders (Desai & Potenza, 2009). Given its extensive negative consequences and the harms associated with problem gambling, more research is needed to further explore the various social mechanisms that may help transmit and normalize the behavior among youth. Observing gambling-related communication and perceived social norms online might influence

youths' thoughts about gambling and facilitate gambling behavior among them.

### 2.2. Social identity approach to youth behavior

Social identity theory (SIT) is well supported in past research examining the role of social identities in different health-behaviors and destructive habits (Crabtree et al., 2010; Haslam et al., 2009; Hogg et al., 2011). Social identification was originally described by Tajfel and Turner (1979) and refers to a process through which connectedness to desired social groups partly determines individual's identity. Social identity is commonly operationalized as the subjective sense of belonging to desired groups (Cruwys et al., 2016). Once membership with a desired group is determined, other group members become perceived as affiliates of the "in-group" while people who are not members of the in-group are perceived as members of "out-groups" (Haslam et al., 2000; Tajfel & Turner, 1986).

Becoming a member of a peer group consisting of similar others is advantageous for an individual (Tajfel & Turner, 1979), because it enhances positive self-identity and self-esteem (Noel et al., 1995). Peer group membership also impacts decision-making processes (Buckingham et al., 2013) and social identity can have significant impacts when it comes to making short- and long-term life-style choices. Research has established that people's social identities significantly impact their emotions, attitudes, perceptions, and subsequent harmful or healthy behaviors (Bruner et al., 2014; Terry et al., 2000). A study by Dingle et al. (2015) found that social identity can function as a pathway into or out of addiction. The authors discovered that the development of an addiction was associated with a sense of belonging and acceptance within a substance using social network, thus bringing along a new valued identity as a substance user. Conversely, participants who were seeking addiction treatment indicated that their social identity as a member of a "recovery" social network was advantageous (Dingle et al., 2015). Another study found that transition away from addiction was associated with improvements in social connectedness, specifically with changes away from social networks consisting of other addicts and into social groups composed of other people in recovery (Bathish et al., 2017).

Peer groups are a central part of adolescents' and emerging adults' life, and they spend a substantial amount of time with peers (Tarrant, 2002). Identifying with peers is increasingly important to young individuals, for it offers means to cope with uncertainty and resolve identity conflicts (Helve & Bynner, 2007). The sense of social identity derived from peers is also a motivating factor in intergroup behavior (Tajfel & Turner, 1986). While collective identity can encourage pro-social behavior, social identity also has a paradoxical role in promoting and mitigating delinquent youth behaviors (Merrilees et al., 2013). A study by Pelling and White (2009) investigating youth addictive tendencies found that those youth who identified strongly as social networking website users and had a strong need to belong also showed addictive tendencies towards using such sites. Another study on online social identity among university students between 17 and 24 years of age concluded that identifying as a drinker was socially desirable and normalized binge drinking behavior among students (Ridout et al., 2012).

While previous studies have established that social identity is an important factor in behavior and addiction, and recovery from addiction, it has been rarely applied to examining youths' cyberbehavior and problem gambling. Furthermore, past studies are limited by adult and college student samples or clinical settings. Using more general and culturally diverse samples and expanding research to online in-groups and their association with health behavior can offer new insights into understanding youth gambling behavior.

### 2.3. The role of social norms and conformity in youth behavior

Social norms are closely tied to the mechanism of social identity and an extensive body of research has found that social norms influence and shape the way people behave and engage in different activities (e.g., Reno et al., 1993; Rimal & Real, 2005; Sherif, 1936). The social norms approach by Perkins and Berkowitz (1986) suggests that human behavior is influenced by (often incorrect) perceptions of how other social group members think and act. Different theories have also explained why people follow perceived norms, ranging from societal value theories to functional and survival perspectives (Campbell, 1976; Opp, 1982). Some reasons for following norms set by certain groups include social validation (Festinger, 1954) and reinforcement due to the reward power of normative behavior (Cialdini & Trost, 1998).

Though norms impact a range of behaviors, previous research indicates several linkages between group norm conformity and subsequent health behavior. Youths in particular tend to follow perceived peer norms, as they differentiate themselves from parents and turn more attention to social cues coming from peers (Gifford-Smith et al., 2005). Studies have found that norms set by friends and other meaningful peer groups influence college students' excessive drinking behavior (Cho, 2006; Neighbors et al., 2007). Peer norms are also connected to the intention to exercise and engage in healthy eating behaviors (Yun & Silk, 2011). Laghi et al. (2012) found that adolescent binge eating and drinking behaviors were strongly associated with identity formation and high tendencies to conform with the behavior models set by similar others.

Research on social norms is often accompanied by conformity (Asch, 1956; Sherif, 1936). Conformity refers to the process of moving one's own position towards that of others, even when it contradicts with the person's original position (Asch, 1956; Cialdini & Trost, 1998). Conforming can be motivated by the desire to make accurate judgments in the eyes of others or seek social approval from others (Cialdini & Goldstein, 2004; Deutsch & Gerard, 1955). Individuals hold expectations regarding their own behavior. Conformity can enhance feelings of self-esteem when those self-expectations match the individual's performed behaviors. On the other hand, nonconformity can induce feelings of anxiety and guilt (Deutsch & Gerard, 1955).

Considering the current youth gambling prevalence rates, little research has examined the role of perceived social norms about gambling and conformity to them in youth problem gambling, especially when the norms come from an online source. Because social norms are highly influential in youth behavior, we formed the following hypothesis: Higher conformity with perceived norms about gambling in online interaction is associated with higher problem gambling among youths in Finland, South Korea, Spain, and the United States (H1).

As SIT proposes, individuals value in-group memberships, which also impacts decision-making processes. Thus, we hypothesized that the association between norm conformity and problem gambling will be stronger when norms come from a perceived online in-group (H2). Given that our samples come from four diverse countries, it was expected that some country differences would be observed in terms of following the in-group norm source. This was expected to be higher in more collectivistic and close-contact cultures, such as South Korea and Spain.

### 2.4. The cross-national study

Four countries were chosen for comparison in this cross-national study for their gambling prevalence profiles: Finland, South Korea, Spain, and the United States. Youth gambling is widespread in Finland. According to a recent report, 41% of Finnish 15–17-year-olds had gambled during the past year despite the legal age limit (Salonen et al., 2020). Nearly five percent of youths in this age group are probable at-risk gamblers, while problem gambling is most common (5.3%) among 18–24-year-old Finnish young people (Salonen et al., 2020). In

South Korea, problem gambling prevalence rates range from 2.5% for individuals under 19 years of age to approximately 30% for individuals between 19 and 29-years of age (Korea Center on Gambling Problems, 2016; Williams et al., 2013). In comparison, according to the National Center for Responsible Gaming (2015), two to seven percent of young people in the United States have gambling addiction and six to 15 percent of youth experience gambling-related problems.

Gambling is relatively common in Spain with over 76% of the general Spanish population having gambled at some point during their life (Chóliz et al., 2019; Directorate General for the Regulation of Gambling, 2015). Up to five percent of the overall Spanish population are at-risk or problem gamblers, and an important feature of these at-risk or problem gamblers is that about 16% of them started playing games of chance under the age of 18, while as many as 58.5% started the activity between the ages of 18 and 24 (Directorate General for the Regulation of Gambling, 2015). Even though the cultural features of these four countries are distinct, the youth problem gambling phenomenon is recognizable in all of them. At the same time, these countries differ in their cultural structures (representing Nordic and Southern European societies and Western and Eastern cultures), making them attractive for a meaningful investigation when comparing youths' conformity to norms online and its association with problem gambling.

Our research combines behavioral measures from simulated online environment (i.e., detects how often a participant follows a perceived majority opinion in social media context) and self-reported measures on problem gambling (i.e., the South Oaks Gambling Screen). The personal characteristics of self-esteem and impulsivity are accounted for, because they are typically heightened during younger years and may influence youth risk behavior and have been associated with gambling (e.g., Auger et al., 2010; Blaszczyński & Nower, 2002; Liu et al., 2013). The next section reports the methods used in this study before moving to the results with discussion and conclusions.

## 3. Material and methods

### 3.1. Participants and procedure

Participants were 15–25-year-old young people who entered the study in March 2017 in Finland ( $n = 1,200$ , 50% females,  $M_{age} = 21.29$ ,  $SD = 2.85$ ), in January 2018 in the United States ( $n = 1,212$ , 50.17% females,  $M_{age} = 20.05$ ,  $SD = 3.19$ ), in February 2018 in South Korea ( $n = 1,192$ , 50.42% females,  $M_{age} = 20.61$ ,  $SD = 3.24$ ), and in January 2019 in Spain ( $n = 1,212$ , 48.76% females,  $M_{age} = 20.07$ ,  $SD = 3.16$ ). Data were collected from a pool of volunteers administered by a data-services company Dynata (former Survey Sampling International). The data were demographically balanced for age, gender, and living area in all four countries.

A web-based survey measuring demographic variables, personal characteristics, and problem gambling behavior was given to the participants. The original surveys were in Finnish and in English. The English survey was then translated to Korean by proficient Korean and English speakers. The survey went through a back-translation process to guarantee internal consistency and accurate matching of the items. The English survey was lastly translated into Spanish by proficient Spanish and English speakers and went through the same back-translation procedures.

A vignette experiment portion was included in the middle of the survey. The experimental portion simulated social media messages with gambling content and were shown to participants. Each participant saw four different gambling messages in randomized order. The content of the messages was manipulated: half of the messages expressed pro-gambling attitudes (i.e., discussed the upsides of gambling, such as excitement) and half expressed anti-gambling attitudes (i.e., discussed the downsides of gambling, such as potential gambling problems). The experimental portion also manipulated in-group information by dividing respondents into two groups.

This research was approved by the Academic Ethics Committee of the Tampere Region before implementation. Participation in the study was voluntary and participants were informed they could withdraw from the study at any time. All ethical guidelines were followed.

### 3.2. Measures

**Problem gambling** was our dependent variable, and it was measured with the South Oaks Gambling Screen (SOGS). The SOGS is a psychometrically validated measure of pathological gambling consisting of 20 items targeting different aspects of gambling behavior (e.g., “Did you ever gamble more than you intended to?”). In this study, it was used to measure the intensity of gambling behavior. The SOGS is a commonly used measure in research studies when screening for pathological gambling behavior (Lesieur & Blume, 1987). Some of the test items were slightly modified to accommodate for variations in gambling practices across cultures. The score range was from 0 to 20, each agreeing answer giving a point (no = 0, yes = 1). Higher scores indicate more severe gambling problems. In the primary analyses, the SOGS was treated as a continuous measure. In the supplementary logistic regression analyses, we used a cut-off score of five, as suggested by Lesieur and Blume (1987), denoting probable pathological gambling. The SOGS was found to be a reliable ( $\alpha = 0.90$  in the Finnish sample,  $\alpha = 0.82$  in the South Korean sample,  $\alpha = 0.79$  in the Spanish sample, and  $\alpha = 0.90$  in the US sample) measure to examine youth problem gambling.

**Group membership.** In the experimental portion of the survey, the participants were randomly assigned to either control group or experimental in-group condition. In the experimental in-group condition, participants were informed they belong to a group ‘C’ because the answers they had provided on the survey so far were similar to “other members in group C”. Given that people form groups fairly quickly and even on minimal basis (Sherif et al., 1961), this in-group information was designed to function as an environmental cue and intended to facilitate a social online environment for the survey participants. In the control group condition, no in-group information was given.

**Norm conformity.** The extent of conforming to perceived norms about gambling in online interaction was determined by a within-person design calculation. Every time a participant agreed with the perceived majority (i.e., liked a message that was also liked by the majority of others/other in-group members), a point was earned. We manipulated the distribution of majority likes so that in half the messages the majority (e.g., 85%) had liked the content and in the other half, the majority had disliked the content. The vignettes were partitioned into two sets so that pro-gambling and anti-gambling messages were “liked” by the majority equally many times. This was done so that no particular attitude toward gambling content was favored by the two groups. Because each participant saw a total of four gambling-content messages, the points ranged from 0 to 4. Higher points indicate higher conformity with the majority opinion (e.g., *gambling norm*).

**Self-esteem.** The Single Item Self-Esteem Scale, SISE (Robins et al., 2001) was utilized to measure youth self-esteem. The score range was

from 1 to 10, with higher scores indicating higher self-esteem. The single item scale for measuring global self-esteem has been found to have a high test-retest reliability and criterion validity (Atroszko et al., 2017).

**Impulsivity.** The Eysenck Impulsivity Scale (Eysenck & Eysenck, 1977) was used to measure impulsive behavior patterns. The measure consisted of five items each targeting different aspects of impulsive behavior. Answer options were dichotomous (no = 0, yes = 1), yielding a scale ranging from 0 to 5. The scale has good psychometric properties, and it is widely used in research studies examining the role of impulsiveness in different problem behaviors.

### 3.3. Statistical analysis

All analyses were conducted by using Stata 15.1 statistical software. Descriptive statistics were first calculated for all variables (Table 1). Kruskal-Wallis tests were used to test if the mean differences in the SOGS-scores between the countries were statistically significant. To test the hypotheses, the primary analyses utilized ordinary least squares (OLS) regression with robust standard errors. Two analytical steps were performed. The first model included all main effects of our study variables. In the second step, an interaction term between norm conformity and group membership was included in the model. This allowed us to examine whether the association between problem gambling and norm conformity is stronger when norms come from a perceived online in-group (H2). This approach was applied separately for each country, allowing for effective comparison of the observed effects between all four countries (Finland, South Korea, Spain, and the United States). These results are reported fully in Table 2. Given that the primary analyses treated the SOGS as a continuous measure, we ran supplementary logistic regression and zero inflated Poisson (ZIP) regression analyses to examine whether the observed results hold under 1) SOGS cut-off criteria and 2) when accounting for excess zeros in the data which are common in addiction and problem behavior research (Baggio et al., 2018). These results are provided in the Appendices (Tables 3 and 4).

## 4. Results and discussion

### 4.1. Norm conformity and problem gambling

Descriptive statistics indicate that the highest problem gambling values were in Spain ( $M = 1.80$ ), and in Finland ( $M = 1.60$ ), followed by the United States ( $M = 1.27$ ), and South Korea ( $M = 0.73$ ). These mean differences were statistically significant between all countries except between Finland and Spain ( $p = .073$ ). Norm conformity was comparable in all country samples ( $M = 1.79$  in Spain,  $M = 1.67$  in South Korea,  $M = 1.66$  in the United States, and  $M = 1.27$  in Finland). According to the first step of the OLS analyses, conforming to perceived gambling norms in online interaction was directly and significantly related to higher youth problem gambling behavior in all countries: Finland ( $\beta = .11, p < .001$ ), South Korea ( $\beta = 0.10, p < .001$ ), Spain ( $\beta = 0.06, p = .016$ ), and the United States ( $\beta = 0.10, p < .001$ ). These results

**Table 1**  
Descriptive statistics.

Variable (continuous)	United States			South Korea			Finland			Spain		
	M	SD	Range	M	SD	Range	M	SD	Range	M	SD	Range
Problem gambling	1.27	2.55	0–20	.73	1.92	0–20	1.60	2.56	0–20	1.80	2.91	0–20
Norm conformity	1.66	1.09	0–4	1.67	1.15	0–4	1.27	1.15	0–4	1.79	1.01	0–4
Group membership	.49	.50	0–1	.49	.50	0–1	.47	.50	0–1	.48	.49	0–1
Self-esteem	6.04	2.50	1–10	5.81	2.21	1–10	6.00	2.37	1–10	6.10	2.30	1–10
Impulsivity	2.55	1.42	0–5	2.04	1.32	0–5	2.64	1.46	0–5	2.31	1.24	0–5
Age	20.05	3.19	15–25	20.60	3.24	15–25	21.29	2.85	15–25	20.07	3.16	15–25
Variable (binary)	coding	N	%	coding	n	%	coding	n	%	coding	N	%
Gender	male	604	49.83	male	591	49.58	male	600	50	male	621	51.24
	female	608	50.17	female	601	50.42	female	600	50	female	591	48.76

**Table 2**  
Model 2 of OLS regression effects predicting problem gambling behavior in four countries.

	United States			South Korea			Finland			Spain		
	<i>b</i>	Robust SE	$\beta$	<i>b</i>	Robust SE	<i>B</i>	<i>b</i>	Robust SE	$\beta$	<i>b</i>	Robust SE	$\beta$
Age	.15	.02	.18***	-.03	.02	-.06	.05	.02	.05	.14	.02	.15***
Gender (female)	-.70	.14	-.13***	-.63	.11	-.16***	-1.1	.14	-.22***	-1.3	.16	-.22***
Norm conformity	.23	.09	.10**	.07	.07	.04	.22	.09	.10*	.29	.10	.10**
Group membership	-.02	.25	-.00	-.31	.19	-.08	-.00	.20	-.00	.42	.32	.07
Norm conformity x Group membership	.00	.13	.00	.19	.09	.12*	.04	.12	.02	-.22	.15	-.08
Self-esteem	.07	.03	.07*	-.01	.03	-.01	-.11	.03	-.10***	.00	.03	.00
Impulsivity	.41	.05	.23***	.23	.04	.16***	.36	.05	.21***	.55	.06	.23***
Adjusted R <sup>2</sup>			.12			.06			.12			.13

Note. Group membership reference group: Control.  $p < .05$  \*,  $p < .01$  \*\*,  $p < .001$  \*\*\*.

were consistent in all four countries when using logistic regression analysis. Only when analyzed using ZIP, the direct effect was not found among the U.S. and Spanish samples.

Our results build on past research on social norms and their relationship with behaviors (Cho, 2006; Neighbors et al., 2007) by finding that conforming to perceived gambling norms online was directly associated with higher problem gambling behavior among youths in the four countries. This result also provides support for our first hypothesis, indicating that conforming to majority opinion about gambling in an online setting is associated with higher problem gambling behavior among youth. Moreover, this result is consistent in diverse cultural settings, as these countries represent both Nordic and Southern European nations, as well as individualistic western culture of the United States and collectivistic eastern culture of South Korea. This may imply that young problem gamblers are universally sensitive when it comes to encountering gambling content online. Subsequently, these youths seem to conform to perceived gambling norms in order to achieve uniformity with the majority opinion, even if it contradicts with their personal opinion.

#### 4.2. In-group information as a moderating factor

The interaction analyses showed that in-group information moderated the relationship between online norm conformity and problem gambling behavior only among the South Korean sample. Although the effect size was relatively small, a significant association was found among those South Korean participants who had received in-group information ( $\beta = .12$ ,  $p = .024$ ). There were no significant moderation effects of in-group information observed among the Finnish ( $\beta = 0.02$ ,  $p = .743$ ), Spanish ( $\beta = -0.08$ ,  $p = .122$ ), or the U.S. ( $\beta = 0.00$ ,  $p = .999$ ) samples. When assessed using logistic and ZIP regression analyses, these results were replicated, but the in-group effect found in South Korea diminished.

In Finland, Spain, and the United States, in-group condition and control condition produced equal effects in terms of norm conformity and problem gambling. This could indicate that minimal in-group formation does not occur as easily and efficiently in the virtual world for youths in these specific cultural settings that endorse more individualistic (Finland and the U.S.) or close-contact (Spain) values. Rather, observed norms coming from perceived majorities are used as a reference point in effort to make sense of online networks and information within them.

On the other hand, the moderation effect was observed in South Korea when using OLS regression. This finding may suggest that in-group formation could occur based on a minimal cue in the South Korean cultural context where youths are more susceptible to follow in-group norms. Further, the result may indicate that South Korean youths value group harmony even in online interaction and place more importance on interaction when communication is coming from an in-group (Kim & Markus, 1999). The finding may also reflect cultural values and individual differences between collectivistic Eastern and individualistic Western societies (Kim & Markus, 1999). In other words,

Korean youths might, in general, care more about where a perceived norm comes from. These social mechanisms seem to occur even in virtual interaction.

#### 4.3. Individual factors and gambling

Out of the individual characteristics accounted for, self-esteem was significantly related to higher problem gambling behavior in Finland and the U.S., but these effects were inverse: in Finland, lower self-esteem was associated with problem gambling ( $\beta = -0.10$ ,  $p = .001$ ), while in the U.S., higher self-esteem was related to problem gambling ( $\beta = 0.07$ ,  $p = .030$ ). Higher impulsivity was related to increased problem gambling behavior consistently in all four countries, ( $\beta = 0.21$ ,  $p < .001$  in Finland,  $\beta = 0.16$ ,  $p < .001$  in South Korea,  $\beta = 0.23$ ,  $p < .001$  in Spain, and  $\beta = 0.23$ ,  $p < .001$  in the U.S.). Male gender was significantly associated with higher problem gambling among youth across the countries ( $\beta = -0.22$ ,  $p < .001$  in Finland,  $\beta = -0.16$ ,  $p < .001$  in South Korea,  $\beta = -0.22$ ,  $p < .001$  in Spain, and  $\beta = -0.13$ ,  $p < .001$  in the U.S.). Age was also a significant positive predictor of problem gambling in all countries but South Korea ( $\beta = -0.06$ ,  $p = .080$ ).

The discrepancy observed in self-esteem in Finland and the United States may reveal existing qualitative differences in the characteristics of young problem gamblers in the two countries. Perhaps for those U.S. youths who qualify as problem gamblers, gambling activities function as a way of elevating self-esteem, even if temporarily (Lesieur & Heineman, 1988). Among Finnish youths, gambling is more generally associated with feelings of guilt and shame (Raisamo et al., 2013) which might be reflected in the results.

The results relating to impulsivity are in line with previous research indicating that impulsivity is a significant risk factor in many risky and addictive behaviors (Romer, 2010), including problem gambling (Oksanen et al., 2021). As impulsive individuals typically have a low tolerance for boredom and they tend to seek thrills, it is conceivable that the characteristic is associated with youth problem gambling. Thus, the role of impulsive personality in both problem gambling and other types of addictions such as substance abuse disorders partly explains the widely reported comorbidity between these types of addictions (Grant et al., 2010).

## 5. Limitations and future research

Some study limitations should be acknowledged. First, the cross-sectional design of the study does not allow for causal interpretations of the results. Second, our sample did not consist of problem gamblers per se. However, significant effects were found in multiple analyses among the samples mirroring the current population estimates of each examined country. Future research could attempt to replicate these findings particularly among samples of problem gamblers. Additionally, the SOGS has received criticism for its sensitivity to false positives when measuring problem gambling behavior outside of clinical samples (Stinchfield, 2002). Future studies should attempt to examine the effects of perceived social norms on problem gambling by employing other

problem gambling measures.

Lastly, the experimental manipulation of in-group information might not have been strong enough to sufficiently produce an in-group environment for the participants. Building social groups that are important for individuals, especially in online contexts, likely takes more personal effort and investment from the individuals' part. Future research should alter the in-group manipulation of the experimental design or focus on longitudinal methods to find more robust effects around online in-groups and investigate how social identities within them influence norm conformity and behavior.

Even though we found a small but significant in-group effect in the South Korean sample, it is possible that our unspecified and externally assigned membership of group 'C' remained superficial in generating a meaningful group environment for the participants. This might have been further reflected in the supplementary analyses. However, given that an interaction effect was observed in the South Korean data, future research should test these effects with data from culturally similar countries with comparable gambling prevalence rates. For instance, comparing these results to those from Japan where gambling is prevalent might be meaningful (Mori & Goto, 2020).

### 6. Conclusions

This cross-national study provides initial information on how perceived gambling-related norms in online interaction relate to youth problem gambling behavior globally. The results of the study imply that conforming to social norms occurs in the virtual world where social interactions cannot rely on face-to-face communication and direct observations. When individuals are given an in-group situation online, social identification processes (i.e., valuing the in-group opinion) might take place, but these mechanisms likely require meaningful effort and motivation from the individual. Perceived norms, however, function more generally as a frame of reference for desired behavior, and this seems to hold constant when perceived norms are encountered online. Thus, perceived norms coming from online sources appear to guide the thought processes of young individuals, at least when related to quick decision making, which was the case in this study. It seems that in online interaction, norm conformity by youth occurs despite social identification processes, denoting that the online environment might be as influential as the offline environment in shaping youth behavior.

The result might further denote that problematically gambling young individuals have a predisposition to imitate the most common perceived behavior set by others once they observe it online. This may make them

more malleable to conform to the perceived majority opinions. It is proposed that youth problem gambling prevention work focuses on methods that take these nuances into account. Educators and healthcare professionals should consider utilizing online prevention and intervention programs through which young online users could be educated about gambling and gambling harms and introduced to healthy social norms about gambling. This could be effective in guiding young individuals away from gambling activities. Implementing policies that limit gambling content online and providing accurate information about gambling to youth could be effective ways to protect young individuals from gambling problems. School policies should consider educating youths to think critically about the content they encounter online.

Previous research (e.g., Bathish et al., 2017; Dingle et al., 2015) shows that through shifting social identities, people can fall into or out of addiction or other harmful behaviors. While our study found that in-group information was significantly associated with problem gambling only among the South Korean sample, it is feasible that building healthy social groups online can improve prevention and intervention work around gambling. Some previous work has found that discussing gambling harms and seeking peer support to gambling problems online can provide important help for problem gamblers (e.g., Sirola et al., 2018). Receiving support from an online in-group and focusing on healthy group norms could be a way forward and out of youth problem gambling.

### Credit author statement

Iina Savolainen: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft, Validation, Funding acquisition. Atte Oksanen: Conceptualization, Methodology, Investigation, Formal analysis, Validation, Writing – review & editing, Supervision, Funding acquisition. Markus Kaakinen: Conceptualization, Methodology, Investigation, Validation, Writing – review & editing, Funding acquisition. Anu Sirola: Conceptualization, Investigation, Methodology, Validation, Writing – review & editing, Funding acquisition. Izabela Zych: Conceptualization, Writing – review & editing. Hye-Jin Paek: Conceptualization, Writing – review & editing.

### Acknowledgments

This work was supported by the Finnish Foundation for Alcohol Studies (Problem Gambling and Social Media Project, 2017–2020, PI: Prof. Atte Oksanen).

## Appendix A

Table 3

Supplementary logistic regression analyses predicting problem gambling in four countries.

	United States			South Korea			Finland			Spain		
	OR	SE	95% CI	OR	SE	95% CI	OR	SE	95% CI	OR	SE	95% CI
Age	1.1***	.04	1.0, 1.2	.96	.05	.87, 1.1	.99	.03	.93, 1.1	1.1***	.03	1.2, 1.9
Gender (female)	.45***	.10	.29, .69	.13***	.06	.06, .29	.24***	.06	.15, .37	.33***	.06	.23, .48
Norm conformity	1.5**	.22	1.1, 1.9	1.3	.23	.89, 1.8	1.4**	.18	1.1, 1.8	1.6***	.20	1.2, 1.9
Group membership	1.5	.66	.62, 3.5	.29	.20	.08, 1.1	1.3	.43	.66, 2.5	1.7	.70	.83, 3.8
Norm conformity x Group membership	.88	.17	.59, 1.3	1.7	.45	.98, 2.8	.91	.15	.66, 1.3	.71	.13	.50, 1.0
Self-esteem	1.0	.04	.94, 1.1	.91	.07	.79, 1.1	.87**	.04	.80, .94	.99	.03	.92, 1.1
Impulsivity	1.5***	.12	1.3, 1.8	1.6***	.17	1.2, 1.9	1.5***	.10	1.3, 1.7	1.6***	.11	1.4, 1.8

Note. Group membership reference group: Control. OR = Odds ratio. SE = Standard error. 95% CI = 95% Confidence interval.  $p < .05$  \*,  $p < .01$  \*\*,  $p < .001$  \*\*\*.

## Appendix B

Table 4

Supplementary Zero Inflated Poisson regression effects predicting problem gambling behavior in four countries.

	United States			<i>b</i>	South Korea		<i>b</i>	Finland		Spain		
	<i>B</i>	Robust <i>SE</i>	95% <i>CI</i>		Robust <i>SE</i>	95% <i>CI</i>		Robust <i>SE</i>	95% <i>CI</i>	<i>b</i>	Robust <i>SE</i>	95% <i>CI</i>
Age	.03*	.02	.00, .06	-.02	.02	-.06, .02	-.02	.01	-.05, .00	.02	.01	-.01, .04
Gender (female)	-.22*	.08	-.38, -.05	-.34**	.12	-.56, -.11	-.42***	.07	-.56, -.28	-.34***	.07	-.48, -.19
Norm conformity	.12*	.05	.01, .22	.05	.06	-.07, .17	.08	.04	-.00, .17	.06	.04	-.01, .14
Group membership	.28	.16	-.03, .59	-.22	.21	-.63, .20	.04	.12	-.18, .27	.02	.14	-.26, .30
Norm conformity x Group membership	-.13	.07	-.27, .02	.12	.09	-.06, .30	-.04	.06	-.15, .07	-.01	.06	-.14, .11
Self-esteem	.01	.02	-.02, .05	-.02	.03	-.07, .03	-.06***	.02	-.09, .03	.00	.02	-.03, .04
Impulsivity	.19***	.03	.12, .25	.13**	.05	.04, .23	.11***	.02	.06, .15	.16***	.03	.09, .22

Note. Group membership reference group: Control. 95% CI = 95% Confidence interval.  $p < .05$  \*,  $p < .01$  \*\*,  $p < .001$  \*\*\*.

## References

- Asch, S. E. (1956). Studies of independence and conformity: I. A minority of one against a unanimous majority. *Psychological Monographs: General and Applied*, 70(9), 1–70. <https://doi.org/10.1037/h0093718>
- Atroszko, P. A., Sawicki, A., Sendal, L., & Atroszko, B. (2017). Validity and reliability of single-item self-report measure of global self-esteem. In M. McGreevy, & R. Rita (Eds.), *CER comparative European research 2017* (pp. 120–123) (London, UK).
- Auger, N., Lo, E., Cantinotti, M., & O'Loughlin, J. (2010). Impulsivity and socio-economic status interact to increase the risk of gambling onset among youth. *Addiction*, 105(12), 2176–2183. <https://doi.org/10.1111/j.1360-0443.2010.03100.x>
- Baggio, S., Iglesias, K., & Rousson, V. (2018). Modeling count data in the addiction field: Some simple recommendations. *International Journal of Methods in Psychiatric Research*, 27(1), e1585. <https://doi.org/10.1002/mpr.1585>
- Bathish, R., Best, D., Savic, M., Beckwith, M., Mackenzie, J., & Lubman, D. I. (2017). "Is it me or should my friends take the credit?" the role of social networks and social identity in recovery from addiction. *Journal of Applied Social Psychology*, 47(1), 35–46. <https://doi.org/10.1111/jasp.12420>
- Best, P., Manktelow, R., & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review*, 41, 27–36. <https://doi.org/10.1016/j.childyouth.2014.03.001>
- Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction*, 97(5), 487–499. <https://doi.org/10.1046/j.1360-0443.2002.00015.x>
- Blinn-Pike, L., Worthy, S. L., & Jonkman, J. N. (2010). Adolescent gambling: A review of an emerging field of research. *Journal of Adolescent Health*, 47(3), 223–236. <https://doi.org/10.1016/j.jadohealth.2010.05.003>
- Brunelle, N., Leclerc, D., Cousineau, M.-M., Dufour, M., Gendron, A., & Martin, I. (2012). Internet gambling, substance use, and delinquent behavior: An adolescent deviant behavior involvement pattern. *Psychology of Addictive Behaviors*, 26(2), 364–370. <https://doi.org/10.1037/a0027079>
- Bruner, M. W., Boardley, I. D., & Côté, J. (2014). Social identity and prosocial and antisocial behavior in youth sport. *Psychology of Sport and Exercise*, 15(1), 56–64. <https://doi.org/10.1016/j.psychsport.2013.09.003>
- Buckingham, S. A., Frings, D., & Albery, I. P. (2013). Group membership and social identity in addiction recovery. *Psychology of Addictive Behaviors*, 27(4), 1132–1140. <https://doi.org/10.1037/a0032480>
- Calado, F., Alexandre, J., & Griffiths, M. D. (2016). Prevalence of adolescent problem gambling: A systematic review of recent research. *Journal of Gambling Studies*, 33(2), 397–424. <https://doi.org/10.1007/s10899-016-9627-5>
- Campbell, D. T. (1976). On the conflicts between biological and social evolution and between psychology and moral tradition: Reprise. *American Psychologist*, 31(5), 381–384. <https://doi.org/10.1037/0003-066x.31.5.381>
- Canale, N., Griffiths, M. D., Vieno, A., Siciliano, V., & Molinaro, S. (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. <https://doi.org/10.1016/j.chb.2015.12.020>
- Cantell, M., Castrén, S., Fabritius, J., Järvinen-Tassopoulos, J., Keinänen, J., Kesänen, M., ... Tukia, J., et al. (2018). *State of play 2017: A review of gambling in Finland. National institute for health and welfare (THL review report 12/2017)*. In J. Järvinen-Tassopoulos (Ed.). Helsinki: Finland. report.
- Cho, H. (2006). Influences of norm proximity and norm types on binge and non-binge drinkers: Examining the under-examined aspects of social norms interventions on college campuses. *Journal of Substance Use*, 11(6), 417–429. <https://doi.org/10.1080/14659890600738982>
- Chóliz, M., Marcos, M., & Lázaro-Mateo, J. (2019). The risk of online gambling: A study of gambling disorder prevalence rates in Spain. *International Journal of Mental Health and Addiction*, 1–14. <https://doi.org/10.1007/s11469-019-00067-4>
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology*, 55(1), 591–621. <https://doi.org/10.1146/annurev.psych.55.090902.142015>
- Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity, and compliance. In D. T. Gilbert, & S. T. Fiske (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 151–192). Boston: McGraw-Hill.
- Crabtree, J. W., Haslam, S. A., Postmes, T., & Haslam, C. (2010). Mental health support groups, stigma, and self-esteem: Positive and negative implications of group identification. *Journal of Social Issues*, 66(3), 553–569. <https://doi.org/10.1111/j.1540-4560.2010.01662.x>
- Cruwys, T., Steffens, N. K., Haslam, S. A., Haslam, C., Jetten, J., & Dingle, G. A. (2016). Social identity mapping: A procedure for visual representation and assessment of subjective multiple group memberships. *British Journal of Social Psychology*, 55(4), 613–642. <https://doi.org/10.1111/bjso.12155>
- Derevensky, J. L., & Gilbeau, L. (2015). Adolescent gambling: Twenty-five years of research. *Canadian Journal of Addiction*, 6(2), 4–12.
- Desai, R. A., & Potenza, M. N. (2009). A cross-sectional study of problem and pathological gambling in patients with schizophrenia/schizoaffective disorder. *Journal of Clinical Psychiatry*, 70(9), 1250. <https://doi.org/10.1098/jcp.08m04359>
- Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology*, 51(3), 629–636. <https://doi.org/10.1037/h0046408>
- Dingle, G. A., Cruwys, T., & Frings, D. (2015). Social identities as pathways into and out of addiction. *Frontiers in Psychology*, 6. <https://doi.org/10.3389/fpsyg.2015.01795>
- Directorate General for the Regulation of Gambling. (2015). *Study on the prevalence, behaviour and characteristics of users of games of chance in Spain*. Dirección General de Ordenación del Juego, 2019. Retrieved from Estudio Prevalencia 2015 en%20(3). pdf.
- Dowling, N. A., Merkouris, S. S., Greenwood, C. J., Oldenhof, E., Toumbourou, J. W., & Youssef, G. J. (2017). Early risk and protective factors for problem gambling: A systematic review and meta-analysis of longitudinal studies. *Clinical Psychology Review*, 51, 109–124. <https://doi.org/10.1016/j.cpr.2016.10.008>
- European Casino Association. (2017). *Country-by-Country report* (ECA report). <http://www.europecasinoassociation.org/country-by-country-report/>.
- Eysenck, S. B., & Eysenck, H. J. (1977). The place of impulsiveness in a dimensional system of personality description. *British Journal of Social & Clinical Psychology*, 16(1), 57–68. <https://doi.org/10.1111/j.2044-8260.1977.tb01003.x>
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140. <https://doi.org/10.1177/001872675400700202>
- Foster, D. W., Neighbors, C., Rodriguez, L. M., Lazorwitz, B., & Gonzales, R. (2014). Self-identification as a moderator of the relationship between gambling-related perceived norms and gambling behavior. *Journal of Gambling Studies*, 30(1), 125–140. <https://doi.org/10.1007/s10899-012-9346-5>
- Furlong, A., Woodman, D., & Wyn, J. (2011). Changing times, changing perspectives: Reconciling 'transition' and 'cultural' perspectives on youth and young adulthood. *Journal of Sociology*, 47(4), 355–370. <https://doi.org/10.1177/1440783311420787>
- Gainsbury, S. M., Russell, A., Hing, N., Wood, R., Lubman, D., & Blaszczynski, A. (2015). How the Internet is changing gambling: Findings from an Australian prevalence survey. *Journal of Gambling Studies*, 31(1), 1–15. <https://doi.org/10.1007/s10899-013-9404-7>
- Gifford-Smith, M., Dodge, K. A., Dishion, T. J., & McCord, J. (2005). Peer influence in children and adolescents: Crossing the bridge from developmental to intervention science. *Journal of Abnormal Child Psychology*, 33(3), 255–265. <https://doi.org/10.1007/s10802-005-3563-7>

- Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. (2010). Introduction to behavioral addictions. *The American Journal of Drug and Alcohol Abuse*, 36(5), 233–241. <https://doi.org/10.3109/00952990.2010.491884>
- Griffiths, M. (2003). Internet gambling: Issues, concerns, and recommendations. *CyberPsychology and Behavior*, 6(6), 557–568. <https://doi.org/10.1089/109493103322725333>
- Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology*, 58(1), 1–23. <https://doi.org/10.1111/j.1464-0597.2008.00379.x>
- Haslam, N., Rothschild, L., & Ernst, D. (2000). Essentialist beliefs about social categories. *British Journal of Social Psychology*, 39(1), 113–127. <https://doi.org/10.1348/014466600164363>
- Helve, H., & Bynner, J. (2007). *Youth and social capital*. London: Tufnell Press.
- Hill, P. L., Duggan, P. M., & Lapsley, D. K. (2012). Subjective invulnerability, risk behavior, and adjustment in early adolescence. *The Journal of Early Adolescence*, 32(4), 489–501. <https://doi.org/10.1177/0272431611400304>
- Hogg, M. A., Siegel, J. T., & Hohman, Z. P. (2011). Groups can jeopardize your health: Identifying with unhealthy groups to reduce self-uncertainty. *Self and Identity*, 10(3), 326–335. <https://doi.org/10.1080/15298868.2011.558762>
- Kim, H., & Markus, H. R. (1999). Deviance or uniqueness, harmony or conformity? A cultural analysis. *Journal of Personality and Social Psychology*, 77(4), 785–800. <https://doi.org/10.1037/0022-3514.77.4.785>
- Korea Center on Gambling Problems. (2016). *Statistics on problem gambling*. Retrieved from <https://www.kcgp.or.kr/eng/main.do>.
- Laghi, F., Liga, F., Baumgartner, E., & Baiocco, R. (2012). Identity and conformism among Italian adolescents who binge eat and drink. *Health, Risk & Society*, 14(4), 361–376. <https://doi.org/10.1080/13698575.2012.680952>
- Lapsley, D. K., & Hill, P. L. (2010). Subjective invulnerability, optimism bias and adjustment in emerging adulthood. *Journal of Youth and Adolescence*, 39(8), 847–857. <https://doi.org/10.1007/s10964-009-9409-9>
- Lesieur, H. R., & Blume, S. B. (1987). The South Oaks gambling screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry*, 144(9), 1184–1188. <https://doi.org/10.1176/ajp.144.9.1184>
- Lesieur, H. R., & Heineman, M. (1988). Pathological gambling among youthful multiple substance abusers in a therapeutic community. *British Journal of Addiction*, 83(7), 765–771. <https://doi.org/10.1111/j.1360-0443.1988.tb00509.x>
- Liu, W., Lee, G. P., Goldweber, A., Petras, H., Storr, C. L., Ialongo, N. S., & Martins, S. S. (2013). Impulsivity trajectories and gambling in adolescence among urban male youth. *Addiction*, 108(4), 780–788. <https://doi.org/10.1111/add.12049>
- Merrilees, C. E., Cairns, E., Taylor, L. K., Goeke-Morey, M. C., Shirlow, P., & Cummings, E. M. (2013). Social identity and youth aggressive and delinquent behaviors in a context of political violence. *Political Psychology*, 34(5), 695–711. <https://doi.org/10.1111/pops.12030>
- Molinario, S., Benedetti, E., Scalse, M., Bastiani, L., Fortunato, L., Cerrai, S., ... Urdih Lazar, T. (2018). Prevalence of youth gambling and potential influence of substance use and other risk factors throughout 33 European countries: First results from the 2015 ESPAD study. *Addiction*, 113(10), 1862–1873. <https://doi.org/10.1111/add.14275>
- Moreno, M. A., Jelenchick, L., Cox, E., Young, H., & Christakis, D. A. (2011). Problematic Internet use among US youth: A systematic review. *Archives of Pediatrics and Adolescent Medicine*, 165(9), 797–805. <https://doi.org/10.1001/archpediatrics.2011.58>
- Mori, T., & Goto, R. (2020). Prevalence of problem gambling among Japanese adults. *International Gambling Studies*, 20(2), 231–239.
- National Center for Responsible Gaming. (2015). *Youth gambling (NCRG fact sheet)*. Retrieved from [https://www.ncrg.org/sites/default/files/ocf/pdfs/ncrg\\_fact\\_sheet\\_youth\\_gambling.pdf](https://www.ncrg.org/sites/default/files/ocf/pdfs/ncrg_fact_sheet_youth_gambling.pdf).
- National Research Council. (1999). *Pathological gambling: A critical review*. Washington, D.C.: National Academy Press.
- Neal, P. N., Delfabbro, P. H., & O'Neil, M. (2005). *Problem gambling and harm: Towards a national definition*. Victoria, Australia: Office of Gambling and Racing, Victorian Government Department of Justice.
- Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Larimer, M. E. (2007). Are social norms the best predictor of outcomes among heavy-drinking college students? *Journal of Studies on Alcohol and Drugs*, 68(4), 556–565. <https://doi.org/10.15288/jsad.2007.68.556>
- Noel, J. G., Wann, D. L., & Branscombe, N. R. (1995). Peripheral ingroup membership status and public negativity toward outgroups. *Journal of Personality and Social Psychology*, 68(1), 127–137. <https://doi.org/10.1037//0022-3514.68.1.127>
- Oksanen, A., Savolainen, I., Sirola, A., & Kaakinen, M. (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(45). <https://doi.org/10.1186/s12954-018-0251-9>
- Oksanen, A., Sirola, A., Savolainen, I., Koivula, A., Kaakinen, M., Vuorinen, I., Zych, I., & Paek, H.-J. (2021). Social ecological model of problem gambling: A cross-national survey study among young people in the United States, South Korea, Spain and Finland. *International Journal of Environmental Research and Public Health*, 8(6), 3220. <https://doi.org/10.3390/ijerph18063220>
- Opp, K.-D. (1982). The evolutionary emergence of norms. *British Journal of Social Psychology*, 21(2), 139–149. <https://doi.org/10.1111/j.2044-8309.1982.tb00522.x>
- Orford, J. (2011). *An unsafe bet?: The dangerous rise of gambling and the debate we should be having*. Chichester, West Sussex: Wiley-Blackwell.
- Pelling, E. L., & White, K. M. (2009). The theory of planned behavior applied to young people's use of social networking web sites. *CyberPsychology and Behavior*, 12(6), 755–759. [10.1089=cpb.2009.0109](https://doi.org/10.1089=cpb.2009.0109)
- Perkins, H. W., & Berkowitz, A. D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *International Journal of the Addictions*, 21(9–10), 961–976. <https://doi.org/10.3109/10826088609077249>
- Potenza, M. N., Wareham, J. D., Steinberg, M. A., Rugle, L., Cavallo, D. A., Krishnan-Sarin, S., & Desai, R. A. (2011). Correlates of At-Risk/Problem Internet gambling in adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 50(2), 150–159. <https://doi.org/10.1016/j.jaac.2010.11.006>
- Raisamo, S., Halme, J., Murto, A., & Lintonen, T. (2013). Gambling-related harms among adolescents: A population-based study. *Journal of Gambling Studies*, 29(1), 151–159. <https://doi.org/10.1007/s10899-012-9298-9>
- Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social norms. *Journal of Personality and Social Psychology*, 64(1), 104–112. <https://doi.org/10.1037//0022-3514.64.1.104>
- Ridout, B., Campbell, A., & Ellis, L. (2012). 'Off your Face (book)': Alcohol in online social identity construction and its relation to problem drinking in university students. *Drug and Alcohol Review*, 31(1), 20–26. <https://doi.org/10.1111/j.1465-3362.2010.00277.x>
- Rimal, R. N., & Real, K. (2005). How behaviors are influenced by perceived norms: A test of the theory of normative social behavior. *Communication Research*, 32(3), 389–414. <https://doi.org/10.1177/0093650205275385>
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin*, 27(2), 151–161. <https://doi.org/10.1177/0146167201272002>
- Romer, D. (2010). Adolescent risk taking, impulsivity, and brain development: Implications for prevention. *Developmental Psychobiology: The Journal of the International Society for Developmental Psychobiology*, 52(3), 263–276. <https://doi.org/10.1002/dev.20442>
- Salonen, A., Lind, K., Hagfors, H., Castrén, S., & Kontto, J. (2020). *Gambling, problem gambling and attitudes and opinions towards gambling in 2007–2019*. Finnish Gambling 2019. Finnish Institute for Health and Welfare (THL). Report 18/2020.
- Shead, N. W., Derevensky, J. L., & Gupta, R. (2010). Risk and protective factors associated with youth problem gambling. *International Journal of Adolescent Medicine and Health*, 22(1), 39–58.
- Sherif, M. (1936). *The psychology of social norms*. Oxford, England: Harper.
- Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., & Sherif, C. W. (1961). *Intergroup conflict and cooperation: The robbers cave experiment*. Norman, OK: University Book Exchange.
- Sirola, A., Kaakinen, M., & Oksanen, A. (2018). Excessive gambling and online gambling communities. *Journal of Gambling Studies*, 34(4), 1313–1325. <https://doi.org/10.1007/s10899-018-9772-0>
- Sirola, A., Savela, N., Savolainen, I., Kaakinen, M., & Oksanen, A. (2020). The role of virtual communities in gambling and gaming behaviors: A systematic review. *Journal of Gambling Studies*, 37, 165–187. <https://doi.org/10.1007/s10899-020-09946-1>
- Splevins, K., Mireskandari, S., Clayton, K., & Blaszczyński, A. (2010). Prevalence of adolescent problem gambling, related harms and help-seeking behaviours among an Australian population. *Journal of Gambling Studies*, 26(2), 189–204. <https://doi.org/10.1007/s10899-009-9169-1>
- Stinchfield, R. (2002). Reliability, validity, and classification accuracy of the South Oaks gambling screen (SOGS). *Addictive Behaviors*, 27(1), 1–19. [https://doi.org/10.1016/s0306-4603\(00\)00158-1](https://doi.org/10.1016/s0306-4603(00)00158-1)
- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), *The social psychology of intergroup relations* (p. 33–47). Monterey, CA: Brooks Cole.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel, & W. G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago: Nelson Hall.
- Tarrant, M. (2002). Adolescent peer groups and social identity. *Social Development*, 11(1), 110–123. <https://doi.org/10.1111/1467-9507.00189>
- Terry, D. J., Hogg, M. A., & White, K. M. (2000). Attitude-behavior relations: Social identity and group membership. In D. J. Terry, & M. A. Hogg (Eds.), *Applied social research. Attitudes, behavior, and social context: The role of norms and group membership* (pp. 67–93). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Turner, J. C. (1991). *Social influence*. Pacific Grove, CA: Open University Press.
- Welte, J. W., Barnes, G. M., Tidwell, M. C. O., Hoffman, J. H., & Wieczorek, W. F. (2015). Gambling and problem gambling in the United States: Changes between 1999 and 2013. *Journal of Gambling Studies*, 31(3), 695–715. <https://doi.org/10.1007/s10899-014-9471-4>
- Williams, R. J., Lee, C. K., & Back, K. J. (2013). The prevalence and nature of gambling and problem gambling in South Korea. *Social Psychiatry and Psychiatric Epidemiology*, 48(5), 821–834. <https://doi.org/10.1007/s00127-012-0580-z>
- Yun, D., & Silk, K. J. (2011). Social norms, self-identity, and attention to social comparison information in the context of exercise and healthy diet behavior. *Health Communication*, 26(3), 275–285. <https://doi.org/10.1080/10410236.2010.549814>