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Research report

Problematic alcohol use and problem gambling: Associations to structural and functional aspects of social ties in a Finnish population sample

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ABSTRACT

AIMS – This study aims to explore associations between structural and functional aspects of social networks and relationships (here labelled social ties) among individuals exhibiting problematic alcohol use and problem gambling, respectively. MATERIAL & METHODS – Data was collected in the 2011 Western Finland Mental Health Survey, a postal questionnaire survey applying a stratified random sampling approach. The survey response rate was 46.2% (n = 4624, age range 15–80 years). Problem behaviours were assessed using the CAGE and Lie/Bet tools. Logistic regression analyses were performed, with problematic alcohol use and problem gambling as dependent variables. Demographic variables, structural social tie factors (marital status, frequency of social contacts, engagement in association activities) and functional social tie factors (experienced loneliness, social support, neighbourhood trust, general trust) constituted explanatory variables. RESULTS – In this representative population sample, only one structural social tie variable, marital status, proved to be significantly associated with one of the outcomes (problematic alcohol use). Identical functional social tie variables were associated with both problematic alcohol use and problem gambling: individuals exhibiting the problem behaviours experienced higher levels of experienced loneliness and low levels of neighbourhood trust. Identified interaction effects with demographic factors highlight the complexity of links. CONCLUSIONS – Functional aspects of individual-level social ties appear to be more relevant when studying problematic alcohol use or problem gambling, similarly to other forms of mental health problems. The role of social ties as preventive or risk factors for problem behaviour development, as a part of problem behaviour maintenance or as a cessation and a recovery resource should be further explored, considering also interactions with demographic variables.

KEYWORDS – gambling, alcohol, psychosocial, population survey, Finland

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Introduction

In Finland, alcohol consumption and the prevalence of problematic alcohol use is relatively high compared to other western European countries (Ministry of Social Affairs and Health, 2006). The prevalence of harmful alcohol use was estimated to be 6% in 2008 (Huhtanen, Miekkala, Mustonen, & Mäkelä, 2011). The prevalence of problem gambling in Finland has been on an average European level according to a review of national prevalence studies (Williams, Volberg & Stevens, 2012). In 2015 the rate of past-year problem gambling was estimated to be 3.3% (Salonen & Raisamo, 2015). Commonalities and differences between these two problem behaviours are continually discussed, with various research findings highlighting similarities between problem gambling and problematic substance use regarding etiology, symptomatology, comorbidity, neurobiology and treatment options (Grant, Brewer & Potenza 2006; Rash, Weinstock & Patten, 2016; Robbins & Clark, 2015; Yau & Potenza, 2015).

This study is focused on psychosocial factors, specifically on different aspects of the individuals' social networks and relationships (here collectively labelled social ties), and their role when considering problematic alcohol use and problem gambling. For substance use disorders, social tie factors such as social networks or social support can act as both risk and protective factors (Bühringer, Kräplin & Behrendt, 2012). In a review, McCrady (2004) concluded that influences from the social networks of individuals with alcohol use disorders can be both positive and negative. Illustrating review findings, studies have found associations between, for example, problematic alcohol use and small network size in a representative United States population sample (Mowbray, Quinn and Crawford, 2014) and a negative association between general trust and problematic alcohol use among men in a Swedish population sample (Lindström, 2005).

While there are no existing theories of substance use disorders with a main focus on individual-level social ties, social network theories do focus on the theme but on a broader population or group level, and other broader, interactionistic theories somewhat encompass social and environmental aspects (West & European Monitoring Centre for Drugs and Drug Addiction, 2013; West & Brown, 2013). Similarly, no comprehensive theories (e.g. Blaszczynski & Nower, 2002) regarding problem gambling put any (greater) emphasis on individual-level social ties. Problem gambling and social ties have been less studied than problematic alcohol use and social ties, but associations between experienced loneliness and problem gambling, for example, have been found in a larger population sample in Finland (Castrén et al., 2013) and in a smaller cross-sectional Australian sample (McQuade & Gill, 2012).

Researchers have previously distinguished between structural and functional aspects of individual-level social ties (Cohen & Wills, 1985; Marmot, 2003; Thoits, 2011). The structural, or quantitative, aspects constitute variables such as number and frequency of social contacts or marital status, while functional (qualitative) aspects capture one's experiences related to social ties such as experiences of social support or loneliness and isolation. Cohen and Wills (1985) have explained the

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mechanisms by which social ties influence health outcomes as two-way, a main effects model related to structural aspects, and a stress-buffering model related to functional aspects. The positive, stress-buffering functional mechanisms involved in social relationships and social support provided by primary (family, relatives, friends) and secondary (coworkers, voluntary group members, neighbours) groups include social influence or control, experienced belonging and companionship, and perceived support availability (Thoits, 2011).

As opposed to positive, stress-buffering effects, deficiencies in social network or lack of adequate social relationships can constitute a risk factor for mental health problems (Thoits, 2011). A systematic review has evidenced an inverse association between individual-level social ties and common mental health problems (De Silva, McKenzie, Harpham, & Huttly, 2005). In the Finnish context, social ties have also been found to be associated with various health variables, with a stronger association identified for functional aspects of social ties, compared to structural aspects (Nyqvist, Finnäs, Jakobsson, & Koskinen, 2008).

The aim of our study was to look at structural and functional aspects of individual-level social ties and the associations between these factors and problematic alcohol use and problem gambling, respectively, in a representative Finnish population sample.

Based on the research findings described above, the following hypotheses were assumed:

- The psychosocial explanatory factors (operationalised as structural and functional aspects of individual-level social ties) would be similar for both problematic alcohol use and problem gambling, respectively, due to commonalities between the two problem behaviours.
- The associations to functional, experience-centred, aspects of individual-level social ties would be stronger than the associations to structural factors when studying the two types of problem behaviours.

Materials and methods

Our study is based on data from the 2011 Western Finland Mental Health Survey, a follow-up from population surveys carried out in 2005 and 2008. The postal questionnaire survey collects information on mental health and the use of mental health and substance abuse services in four hospital districts in western Finland (Herberts et al., 2012).

Survey recipients (n = 10,000) aged 15 to 80 years were selected from the Population Information System by the Finnish Population Register Centre, applying a stratified random sampling approach. Recipients were residents of Vaasa, Central Ostrobothnia, southern Ostrobothnia and southwest Finland hospital districts. The sample area has a population of nearly 1 million people, including both rural and urbanised regions. The fact that Finland has two official languages, Finnish and Swedish, is also reflected in the sample area where, alongside the majority of Finnish-speaking municipalities, some bilingual and a few Swedish-speaking municipalities are included (Herberts et al., 2012).

The survey response rate in 2011 was 46.2% (n = 4624). All procedures were in

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accordance with the ethical standards of the National Advisory Board on Research Integrity (2009) and with the Helsinki Declaration of 1975 as revised in 2000 (World Medical Association, 2000).

Measures

Demographic variables

The demographic variables studied were gender, age group (15–29 years, 30–59 years, 60–80 years), employment status (full-time/part-time employment, student/military service/retired/caregiver, and unemployed). In Finland, it is obligatory for males to enter into military service of at least half a year's duration (or civilian service for one year) from the age of 19. Language groups were Finnish, Swedish and other language.

Problematic alcohol use

Problematic alcohol use was measured using the CAGE substance abuse screening tool, a 4-item screening instrument with yes and no response options (Ewing, 1984). The internal consistency for the CAGE questionnaire was Cronbach's α .71, indicating an acceptable reliability of the scale in this sample. The internal attrition rate for the CAGE items varied from 193 to 220 missing cases. Test items are scored as 0 or 1, and respondents who score a total of ≥ 2 points are classified as showing symptoms of alcohol abuse (Ewing, 2000).

Problem gambling

Problem gambling was measured using the validated Lie/Bet screening instrument (in the original screen description referred to as possible pathological gambling or at-risk gambling behaviours, Johnson et al., 1997; Johnson, Hamer, & Nora, 1998). The instrument consists of two questions, derived from the diagnostic criteria for pathological gambling in the DSM-IV (American Psychiatric Association, APA, 1994), with yes or no response options. The internal attrition rate for the Lie/Bet items varied from 554 to 567 missing cases. Answering yes to one, or both, of the statements implies a problem gambling behaviour. While the Lie/Bet questionnaire has not before been formally validated in Finland, it has been validated in a Nordic context in both adult and adolescent population samples in Norway (Götestam, Johansson, Wenzel, & Simonsen, 2004), and has been utilised for screening purposes in large population studies in Denmark (Ekholm et al., 2014) and Sweden (Sundqvist & Wennberg, 2015).

Structural aspects of social ties

Marital status, frequency of social contacts and association activities were used to measure the quantitative, structural aspects of social ties in this study.

Regarding marital status, survey participants could choose between "being married", "in a common-law marriage or relationship", "divorced", "unmarried" or "widowed". The first two options were grouped together in the analyses of this study.

Frequency of social contacts with friends and neighbours, respectively, was measured with two questions. The response options "several times a week" and "several times a month" were combined and coded as frequent social contacts, while "a few times a year", "never" and "does not exist" were combined and coded as infrequent social contacts.

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Participation in association activities was assessed with the question "How active are you when it comes to association activities?" Response options were "very active", "fairly active", "not very active" and "not active at all". The first two options were combined and dichotomised into an "active" category, and remaining alternatives dichotomised into a "non-active" category.

Functional aspects of social ties

In addition to the structural measurements, experienced loneliness, experienced social support and trust in people in one's neighbourhood and general trust represented functional aspects of the individuals' social ties. Experienced loneliness was assessed by the question: "Do you ever feel lonely?", with four response options: "often", "sometimes", "seldom" and "never". The variable was recoded into alternatives "often", "seldom" and "never" by combining often and sometimes into one category.

The Oslo 3-item Social Support Scale (OSS-3, Brevik & Dalgard, 1996), earlier recommended for use in European health surveys by Meltzer (2003), was used to measure experienced social support. (The first question was "How many people are so close to you that you can count on them if you have serious personal problems?" The respondent may choose between "none", "1 or 2", (the first two options grouped together in analyses as indicating a low level of experienced support) "3–5" (coded as a moderate level of support) and "more than 5" (coded as a high level of experienced support)).

Questions regarding trust in people in one's neighbourhood and general trust were also included: "Most people in my neighbourhood can be trusted" and "It is better not to trust anyone". The response options to both questions were the following: "fully correct", "quite correct", "quite incorrect" and "fully incorrect". The responses were dichotomised in this study and reversely studied (agreement with the statements being coded as trust for the first question and disagreement with the statements being coded as trust for the second question).

Data analysis

The data was analysed using stepwise logistic regression analyses, as this approach enables the identification of the most suitable model to describe the association between the outcome variable and a set of theoretically underpinned explanatory variables (Pampel, 2000). The dependent variables were problematic alcohol use and problem gambling, respectively. Three models were constructed for each dependent variable, applying the same order of independent variables. The first model explored demographic variables, the second model adding on the structural variables marital status, social contact with friends, social contact with one's neighbours and participation in association activities. In the third and final model the functional aspects – experienced loneliness, interpersonal social support, neighbourhood trust and general trust – were added to the analyses. Finally, post-hoc regression analyses of interaction effects were performed between social tie variables that proved to be statistically significant and demographic factors, controlling simultaneously for all other included factors in the third model of the logistic regression analyses.

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Results

The sample consisted of 57.1% women (n = 2632) (15 respondents did not report their gender.) Of the respondents, 16.8% (n = 774) were aged 15–29 years, 46.6% (n = 2144) aged 30–59 years and 36.6% (n = 1684) aged 60–80 years. Age was not reported by 22 respondents. The majority of the respondents, 82.1% (n = 3785), had Finnish as their mother tongue, while 16.7% (n = 771) were Swedish-speaking, and 1.2% (n = 54) reported speaking another language. Mother tongue was not reported by 14 survey participants. Regarding occupation, the majority of the sample, 47.6% (n = 2194), were employed full-time or part-time and 47.9% (n = 2208) were retired, students/in military service or caregiver. In this sample, 4.4% (n = 205) of respondents were unemployed, while 17 respondents did not report an occupational status.

In the sample, 926 individuals fulfilled criteria for problematic alcohol use as defined by the CAGE tool. A smaller number of respondents (n = 160) were screened as problem gamblers, while 33 respondents fulfilled criteria for both forms of problem behaviours. In line with the binary logistic regression analysis approach, these 33 respondents are included in the analyses studying the associations between social tie variables and respective problem behaviour outcome. The distribution of structural and functional aspects of social ties among respondents with and without problematic alcohol use or problem gambling, respectively, can be viewed in Tables 1 and 2. When comparing respondents with and without respective problem behaviours, significant differences were found for all variables measuring structural and functional aspects of social ties for problematic alcohol use. Regarding problem gambling, significant differences were found for marital status, social contacts with neighbours, neighbourhood trust, general trust and experienced loneliness.

Tables 3 and 4 present the associations between the social tie factors under study and the two dependent variables (i.e. problematic alcohol use and problem gambling), while controlling for the demographic variables. Statistically significant odds ratios are indicated in bold print (95% confidence interval applied, p-value ≤.05).

For problematic alcohol use, the statistically significant associations for demographic variables were identical in Models 1, 2 and 3 (see Table 3). A significant increased risk of problematic alcohol use was found among men, while a significant decreased risk was found among respondents in the oldest age group as compared to respondents in younger age groups. In all models, a statistically significant higher likelihood of problematic alcohol use was evidenced among the unemployed and among respondents with Finnish as their mother tongue. When adding structural aspects of social ties in Model 2, being divorced significantly increased the likelihood of exhibiting problematic alcohol use within the study sample, while being widowed significantly decreased the probability. Seldom having contact with neighbours increased the likelihood of problematic alcohol use. Marital status remained a statistically significant variable in Model 3, while the association to infrequent social contacts with neighbours became non-significant. Of the functional aspects of social ties added in Model 3, a higher level of experienced loneliness

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Table 1. Distribution of structural and functional aspects of social ties among Finnish respondents (n = 4624) with and without problematic alcohol use.

	No problematic alcohol use (%) N=3698	Problematic alcohol use (%) N= 926	χ^2	All (%) N=4624
	Structural aspect of social ties			
Marital status			42.39 (df = 3)	
Married / in a relationship	72.3	71.5	***p < .001***	72.1
Divorced	7.2	11.2		8.1
Unmarried	14.8	15.9		15.0
Widowed	5.7	1.4		4.8
Social contacts				
With friends			4.40 (df = 1)	
Often	83.0	80.0	***p = .036***	82.4
Seldom	17.0	20.0		17.6
With neighbours			9.84 (df = 1)	
Often	60.9	55.2	***p = .002***	59.7
Seldom	39.1	44.8		40.3
Association activities			6.01 (df = 1)	
Non-active	74.7	78.6	***p = .014***	75.5
Active	25.4	21.4		24.5
	Functional aspect of social ties			
Interpersonal social support			20.68 (df = 2)	
Easy access	21.1	15.4	***p < .001***	19.9
Medium access	45.6	44.7		45.4
Low access	33.3	39.8		34.7
Trust in neighbourhood			17.77 (df = 1)	
High	87.9	82.6	***p < .001***	86.8
Low	12.1	17.4		13.2
General trust			19.16 (df = 1)	
High	82.6	76.2	***p < .001***	81.2
Low	17.4	23.8		18.8
Experienced loneliness			33.69 (df = 2)	
Often	30.5	37.6	***p < .001***	32.0
Seldom	40.1	42.2		40.6
Never	29.3	20.2		27.4

and a lower level of neighbourhood trust proved to be significantly associated with problematic alcohol use. The Nagelkerke R^2 value for model 3 was .127.

In terms of demographic factors and problem gambling (Table 4), being male and being a Finnish-speaker significantly increased the risk of problem gambling

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Table 2. Distribution of structural and cognitive aspects of social ties among Finnish respondents (n = 4624) with and without problem gambling.

	No problem gambling (%) N=4464	Problem gambling (%) N= 160	χ^2	All (%) N=4624
Structural aspect of social ties				
Marital status			17.11 (df = 3)	
Married/ in a relationship	72.8	64.6	***p = .001***	72.3
Divorced	8.5	8.2		8.5
Unmarried	14.0	25.3		14.6
Widowed	4.7	1.9		4.6
Social contacts				
With friends			3.70 (df = 1)	
Often	83.1	77.2	*p = .054*	82.8
Seldom	16.9	22.8		17.2
With neighbours			7.98 (df = 1)	
Often	61.3	50.0	***p = .005***	60.7
Seldom	38.7	50.0		39.3
Association activities			0.72 (df = 1)	
Non-active	76.3	79.2	*p = .395*	76.5
Active	23.7	20.8		23.5
Functional aspect of social ties				
Interpersonal social support			5.14 (df = 2)	
Easy access	19.7	13.9	*p = .076*	19.4
Medium access	45.4	43.7		45.3
Low access	34.8	42.4		35.2
Trust in neighbourhood			22.50 (df = 1)	
High	87.4	74.0	***p < .001***	86.7
Low	12.6	26.0		13.3
General trust			16.94 (df = 1)	
High	82.1	69.0	***p < .001***	81.4
Low	17.9	31.0		18.6
Experienced loneliness			27.89 (df = 2)	
Often	30.5	49.1	***p < .001***	31.5
Seldom	42.0	37.1		41.8
Never	27.5	13.8		26.8

in all three logistic regression models. In Model 1, the likelihood of problem gambling was significantly lower in the older age groups compared to the age group 15–29 years, but these association varied in Models 2 and 3.

Considering the structural aspects of social ties, no variables were significantly as-

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sociated with problem gambling in Models 2 or 3. Nevertheless, Model 3 highlights how higher levels of experienced loneliness and a lower level of neighbourhood trust (both representing functional aspects of social ties) significantly raised the likelihood of problem gambling in the study sample. The Nagelkerke R^2 square value for Model 3 was .103.

Post-hoc regression analyses of interaction effects between social tie variables and socio-demographic variables were performed. For problem gambling, the social tie variables that proved to be significantly associated with this outcome evidenced no significant interaction effects with the demographic variables. However, it should be noted that some of the interaction analyses were not possible to carry out due to the small number of respondents in some of the categories.

For problematic alcohol use, several significant interactions between social tie indicators and the included demographic factors were observed. Marital status (being unmarried) interacted significantly with gender (OR CI 95% 0.41, 0.27–0.64), meaning that in this sample being unmarried presented a risk factor for the women. Neighbourhood trust interacted significantly with age group (30–59 years, OR CI 95% 0.47, 0.28–0.80 and 60–80 years, OR CI 95% 0.46, 0.25–0.87), meaning that being in the youngest age group and experiencing a low level of trust in one's neighbourhood significantly increased the probability of exhibiting problematic alcohol use in this sample. Neighbourhood trust also interacted significantly with language (the group consisting of individuals speaking a language other than Finnish or Swedish, OR CI 95% 0.08, 0.01–0.82), i.e. a low level of neighbourhood trust increased the likelihood of being in the group with problematic alcohol use among native speakers. Finally, general trust interacted with being in the age group 30–59 years (OR CI 95% 0.54, 0.32–0.92); i.e. experiencing low levels of general trust was a risk factor for problematic alcohol use in the youngest (15–29 years) and oldest (60–80 years) age groups in this particular sample.

Discussion

As stated in the article introduction, two results were hypothesised to emerge in this study. First, the associations between individual-level social ties and the two problematic behaviours under study (i.e. problematic alcohol use and problem gambling, respectively), would be similar due to shared features between these two forms of problematic behaviours. Second, the associations to functional aspects of social ties would be stronger than the associations to structural factors, in accordance with earlier research. In other words, the links between factors related to the individual's experience of, for example, support or general trust in others (functional aspects of social ties) would emerge as being more significant than the frequency of contact with people in one's network or similar structural factors. The study results largely support these assumptions in the representative Finnish population sample studied.

Only one structural aspect of social ties (marital status) evidenced a statistically significant association with the two problem behaviours studied in this sample. Being divorced increased the risk of problematic alcohol use in this sample, in line with earlier findings by e.g. Ahlström,

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Table 3. Odds ratios and their 95% confidence intervals (CI) of problematic alcohol use according to three different models in a population-based sample of 4624 in western Finland in 2011. Significant odds ratios ($p \leq 0.05$) marked in bold print.

	Model 1 (Gender + age group + employment status + language group)	**Model 2** (Model 1 + structural aspects of social ties)	**Model 3** (Model 1 + Model 2 + functional aspects of social ties)
Gender			
Women	1.00	1.00	1.00
Men	**2.71** (2.32–3.16)	**2.69** (2.30–3.15)	**2.88** (2.44–3.39)
Age group			
15–29	1.00	1.00	1.00
30–59	1.20 (0.96–1.50)	1.17 (0.91–1.50)	1.13 (0.88–1.46)
60–80	**0.63** (0.50–0.80)	**0.64** (0.49–0.85)	**0.71** (0.53–0.94)
Employment status			
Full time/ part time	1.00	1.00	1.00
Student/retired/caregiver	0.87 (0.71–1.06)	0.88 (0.72–1.08)	0.81 (0.66–1.00)
Unemployed	**1.81** (1.32–2.48)	**1.70** (1.23–2.36)	**1.46** (1.03–2.06)
Language group			
Swedish	1.00	1.00	1.00
Finnish	2.06 (1.62–2.62)	**1.95** (1.54–2.48)	**2.07** (1.62–2.65)
Other	**1.39** (0.66–2.93)	1.30 (0.61–2.75)	1.24 (0.56–2.71)
Marital status			
Married/cohabiting		1.00	1.00
Divorced		**1.70** (1.31–2.22)	**1.37** (1.03–1.82)
Unmarried		0.96 (0.75–1.22)	0.81 (0.63–1.04)
Widowed		**0.45** (0.25–0.80)	**0.37** (0.20–0.68)
Social contacts			
With friends			
Often		1.00	1.00
Seldom		1.04 (0.85–1.28)	0.97 (0.78–1.21)
With neighbours			
Often		1.00	1.00
Seldom		**1.25** (1.06–1.47)	1.11 (0.94–1.32)
Association activities			
Active		1.00	1.00
Non-active		1.17 (0.97–1.41)	1.10 (0.91–1.33)
Experienced loneliness			
Never			1.00
Seldom			**1.57** (1.28–1.94)
Often			**1.99** (1.58–2.50)
Interpersonal social support			
Easy access			1.00
Medium access			1.01 (0.79–1.29)
Low access			1.14 (0.91–1.43)
Experienced trust			
In neighbourhood			
High			1.00
Low			**1.38** (1.07–1.76)
In general			
High			1.00
Low			1.24 (0.99–1.54)

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Table 4. Odds ratios and their 95% confidence intervals (CI) of problem gambling according to three different models in a population-based sample of 4624 in western Finland in 2011. Significant odds ratios ($p \leq 0.05$) marked in bold print.

	Model 1 (Gender + age group + employment status + language group)	**Model 2** (Model 1 + structural aspects of social ties)	**Model 3** (Model 1 + Model 2 + functional aspects of social ties)
Gender			
Women	1.00	1.00	1.00
Men	**2.79** (1.97–3.96)	**2.54** (1.78–3.63)	**2.86** (1.97–4.16)
Age group			
15-29	1.00	1.00	1.00
30-59	**0.57** (0.37–0.88)	0.63 (0.39–1.01)	**0.61** (0.37–0.99)
60-80	**0.39** (0.24–0.61)	**0.48** (0.28–0.84)	0.58 (0.33–1.03)
Employment status			
Full time/ part time	1.00	1.00	1.00
Student/retired/caregiver	1.16 (0.77–1.76)	1.01 (0.66–1.56)	0.85 (0.55–1.31)
Unemployed	1.45 (0.76–2.74)	1.29 (0.67–2.49)	0.86 (0.42–1.78)
Language group			
Swedish	1.00	1.00	1.00
Finnish	**1.94** (1.10–3.41)	**1.93** (1.07–3.46)	**2.21** (1.22–4.01)
Other	**4.53** (1.35–15.19)	**4.12** (1.19–14.31)	3.12 (0.75–12.91)
Marital status			
Married/ in a relationship		1.00	1.00
Divorced		1.21 (0.66–2.23)	0.93 (0.49–1.77)
Unmarried		1.53 (0.97–2.42)	1.24 (0.78–1.98)
Widowed		0.73 (0.22–2.41)	0.41 (0.10–1.75)
Social contacts			
With friends			
Often		1.00	1.00
Seldom		1.46 (0.95–2.23)	1.25 (0.80–1.96)
With neighbours			
Often		1.00	1.00
Seldom		1.37 (0.97–1.93)	1.07 (0.74–1.55)
Association activities			
Active		1.00	1.00
Non-active		1.02 (0.68–1.54)	1.01 (0.66–1.54)
Experienced loneliness			
Never			1.00
Seldom			**1.68** (1.00–2.84)
Often			**3.02** (1.77–5.16)
Interpersonal social support			
Easy access			1.00
Medium access			1.03 (0.59–1.82)
Low access			1.18 (0.69–2.01)
Experienced trust			
In neighbourhood			
High			1.00
Low			**1.92** (1.21–3.05)
In general			
High			1.00
Low			1.24 (0.80–1.94)

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Bloomfield and Knibbe (2001), looking at drinking patterns among men and women in nine European countries where divorced men consistently exhibited the highest alcohol consumption levels. The fact that being widowed decreased the risk of problematic alcohol use in this sample may reflect the finding that being in the age group 60–80 years was also associated with a decreased risk of problematic alcohol use. Further, being unmarried emerged as a risk factor for problematic alcohol use specifically among women in this sample, an effect evident only when conducting interaction analyses. This finding highlights the importance of considering gender as a factor, as much of earlier research both regarding substance use disorders and problem gambling has primarily focused on men (Tuchman, 2010; Holdsworth, Hing & Breen, 2012). The fact that marital status was not significantly associated with problem gambling in this Finnish sample contradicts earlier Finnish research findings (Castrén et al., 2013) where a status of being single or unmarried was associated with problem gambling. It can be noted however that the categorisation of marital status varies in studies, affecting analysis results and decreasing comparability of results.

Identical measures of functional aspects of social ties (higher levels of experienced loneliness and lower levels of trust in one's neighbourhood) were associated with both types of problem behaviours. As no causal inferences can be determined, the causality of the findings are however unclear. On the one hand, experienced loneliness in the case of problematic alcohol use may be attributed to the findings described above regarding associations with being divorced or unmarried. The finding on problem gambling and experienced loneliness is in line with earlier findings from a Finnish context (Castrén, et al, 2013). Experienced loneliness as an associated factor to both problem gambling and problematic alcohol use may be symptomatic of the problem behaviour, related to e.g. concealment of one's problem behaviour or perhaps to the issue of stigma. Individuals suffering from mental health problems experience public stigma and discrimination (see, for example, Aromaa, 2011; Parcesepe & Cabassa, 2013), substance use disorders having been found to be particularly associated with stigma in a review study (Schomerus et al. 2011). Also for individuals with problem gambling behaviours, stigma is evident (Hing, Holdsworth, Tiyce, & Breen, 2014; Horch & Hodgins, 2008). Experienced neighbourhood mistrust could likewise constitute a factor contributing to a problematic alcohol use and/or problem gambling development (indicating a deficiency in social network), or reciprocal effects may apply where the problem behaviour enhances an initial weakness in the social network. The similarities identified when studying the two behaviours in parallel perhaps further underscore other established commonalities between these two forms of problematic behaviours.

Interaction effects underscore the importance of considering the effect of social tie variables in the light of demographic variables, here in addition to gender also age group, and language group. This was evidenced in the interaction between being unmarried and female, discussed above. It can be pointed out that the association concerning language group (being

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a Finnish-speaker as a predicting factor for being categorised in the groups exhibiting problematic alcohol use or problem gambling) is in line with earlier findings by Nyqvist et al. (2008), where a higher level or a better perceived quality of social ties among Swedish speakers compared to Finnish speakers explained some differences in self-reported health outcomes between the two language groups.

As highlighted in the article introduction, problem gambling and substance use disorders are similar with regard to e.g. etiology, symptomatology and treatment options. The issue of co-occurrence between problem gambling and other substance use disorders has also been noted (see e.g. Grant & Chamberlain, 2015), as well as the overlap between these two types of problem behaviours and various mental health problems (e.g. Castrén, et al 2013; Rash, Weinstock & Patten, 2016). In this study, 33 respondents evidenced both problematic alcohol use and problem gambling. However, the limited size of the group permitted further statistical analysis looking deeper into the issue of comorbidity and this subgroup.

Naturally, associations between substance use and gambling and an individual's social environment are complex. As stated earlier, social determinants can constitute protective, regulating or risk factors, depending on their character and individual experience (Thoits, 2011). For example, a new personal relationship may cause such a change that the individual can overcome a problem behaviour (West & Brown, 2013). Similar causal effects are highly relevant in the context of natural recovery (Granfield & Cloud, 2001) and recovery capital (White & Cloud, 2008). Recovery capital encompasses resilience and protective factors on personal, family/social and community levels. Family/social recovery capital encompasses family and social relationships that are supportive of and promote recovery efforts, such as the role of significant others in promoting treatment adherence (Ingle, Marotta, McMillan, & Wisdom, 2008; Hunter-Reel, Witkiewitz, & Zweben, 2012), while community recovery capital includes active efforts to reduce stigma related to the problem behaviour (White & Cloud, 2008).

According to these study results, functional aspects of social ties appear to matter when modelling risk profiles of the two problem behaviours considered in this study. However, future research could focus more on the causal nature of these findings and the role of social ties as both preventive and risk factors for the development of the problem behaviours studied, as well as consequences of the problematic behaviour itself.

Limitations

First, as mentioned in the methods section, it is important to bear in mind that the Lie/Bet and CAGE instruments are developed for screening purposes and are not diagnostic tools. The authors acknowledge this limitation and do not claim to be studying gambling disorder or alcohol use disorder. In line with this, the dichotomisation of variables used in the logistic regression analyses that could be considered a limitation are merely used to classify individuals exhibiting problem behaviours. The high frequency of problematic alcohol use in the sample can at least in part be explained by the alcohol consumption culture in Finland, where alcohol consump-

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tion for many is focused on intoxication (Ministry of Social Affairs and Health, 2006).

The social tie variables included in the study are perceived to cover key aspects of structural and functional aspects of social ties, in line with the study aim. However, it can naturally be discussed whether some additional measure could also have been included.

Regarding the survey response rate, it reflects both a general decline in population survey response rates in recent years, and perhaps also the nature of the survey focus, that is, mental health (Herberts et al., 2012). A response rate of around 50% is today regarded as acceptable and in some instances even good (Babbie, 1990; Schutt, 1999). The risk of high attrition increases when a survey is focused on a sensitive subject, such as mental health, which is still strongly associated with negative attitudes. The anonymity of the survey should however balance this somewhat (Dillman, 2000). Considering that the response attrition is relatively evenly distributed between different groups, overall sample representativeness should be largely intact (Herberts et al., 2012). Finally, the analyses may have been affected by the small numbers of participants in some cells of the logistic regression analyses, causing loss of statistical power.

In the authors' view, study limitations are balanced by the fact that the study is based on a stratified random population sample, focusing on one of the (oftentimes overlooked) psychosocial risk factors for two problem behaviours that both constitute significant public health problems.

Conclusions

In sum, especially functional aspects of individual-level social ties appear to constitute a relevant socioenvironmental factor when studying problematic alcohol use or problem gambling, similarly to other forms of mental health problems. Future research should focus more on the causal nature of these findings and the role of social ties as both preventive or risk factors for problem behaviour development, as consequences of the problematic behaviour itself, as a part of problem behaviour maintenance or a recovery resource, considering also interactions with demographic variables.

Declaration of Interest None

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