1 **Context matters: student-perceived binge drinking norms at faculty-level relate to binge**

2 **drinking behavior in higher education**

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ABSTRACT

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26 BACKGROUND: Binge drinking in higher education is an important problem. To target binge drinking

27 in students it is necessary to study the social context of students. Faculties (i.e., colleges or schools in

28 Northern American education) are social contexts in which students behave, but little is known about

29 how the faculty structure relates to monthly binge drinking. In this study, the relationship with

30 student-perceived binge drinking norms at faculty-level are investigated in addition to known

31 personal determinants.

32 METHODS: Data were collected from 7,181 students in 22 faculty-level units, using an anonymous

33 online survey. Multilevel analyses were used to investigate the relationship of both individual-level

34 determinants (e.g., perceived norms, social drinking motives) and student-perceived binge drinking

35 norms at faculty-level on monthly binge drinking.

36 RESULTS: Two-third (62.2%) of the sample were female and the mean age was 21.06 (SD = 2.85)

37 years. In males, significant faculty-level variance in monthly binge drinking was found. At faculty-level

38 only same-sex student-perceived binge drinking norms showed a positive relationship (OR=2.581;

39 95%CI=[1.023,6.509]). At individual level, both opposite- and same-sex perceived binge drinking

40 norms and social drinking motives positively related to monthly binge drinking. In females, no

41 significant faculty-level variance was found. Only individual-level determinants positively related to

42 monthly binge drinking. No cross-level interactions were found.

43 CONCLUSION: Besides individual determinants faculties are, especially in men, relevant

44 environmental structures and networks to take into account when targeting binge drinking in higher

45 education.

46

1. INTRODUCTION

Binge drinking (i.e., drinking a large amount of alcohol in a short period of time) is a well-established behavior in higher education and a major cause of problematic health-related outcomes (e.g., premature mortality, injury), anti-social behaviors (e.g., vandalism), and decreased academic performance among students [1-3]. Many students mature out of binge drinking, but some persist in heavy drinking patterns as an adult [4].

A popular strategy to target these problems is the use of individual-based interventions through personal channels (e.g., computers, face-to-face) that focus on personal determinants, such as perceived norms [5, 6]. However, the socio-ecological approach describes health as an outcome of both individuals' behavior and the environments in which these individuals live, which implies that interventions should focus on both personal determinants and environmental factors [7, 8].

At the individual level, heavy drinking in students is strongly influenced by the perceived social drinking norms from the network (i.e., reference group) in which students are active and drink alcohol [9, 10]. Students want to fit in these networks in search for friendship, support or intimacy, and therefore drink according to what they believe that important others drink (i.e., descriptive norm) and find acceptable (injunctive norm). However, students often overestimate the actual drinking norms in these networks [9-11], which often encourage them to drink more alcohol than they would otherwise do [9, 10]. Male students usually have higher misperceptions of the drinking norm than female students [12] and these misperceptions generally refer to same-sex referents [13, 14]. In students, peers are important referents, since students spend many hours with peers compared to other referents like parents [9, 11], and peers often play an active role in alcohol offerings through peer pressure or provocations during social events [11, 15-18] Therefore, a clear relation exists between the perceived norms about peers' drinking and a student's own drinking behavior [9, 12, 19]. However, besides these direct observations of peers' behavior or expressed opinions, individuals also extract normative information from summary information about a

74   reference group (e.g., in newspapers) and from signals spread by institutions like schools (e.g.,

75   through (the absence of) policies or denouncements) [20].

76   The relation between perceived norms and alcohol use is mediated and moderated by social drinking

77   motives [21, 22]. Drinking motives are the reasons for which someone drinks alcohol [23]. When

78   students drink for social drinking motives, they drink to enhance their experience with an external

79   trigger, like peers (e.g., to celebrate something with friends, or to be sociable) [24, 25]. Social

80   drinking motives are the most prevalent motives in students [23, 26], which indicates that drinking

81   alcohol is mainly a social event [1, 17]. This social character explains why perceived norms more

82   often motivate students to drink for social reasons, and why perceived norms stronger relate to

83   alcohol use in those students who more often drink for social motives [21, 22].

84   At an environmental level, a relevant structure that relates to alcohol consumption in higher

85   education is the faculty (i.e., the college or school in Northern American education) in which students

86   study. Alcohol use is found to vary between faculties [11, 27, 28]. This variation may be due to

87   compositional differences between faculties, since students with similar characteristics tend to

88   cluster in faculties. For example, in some faculties the majority of students is male or female [29],

89   and in most faculties students share common personality traits [30]. Such compositional differences

90   may lead to variations between faculties in norm reference groups, which may explain the variance

91   in alcohol use between faculties [9]. Besides these compositional differences, real environmental

92   characteristics may also play a role. Differences between faculties exist in the connections between

93   students in faculties, which also relates to alcohol use. For example, in higher density faculties (i.e.,

94   with many connections between students) drinking behavior and drinking norms are easier spread

95   than in lower density faculties [29]. Furthermore, variations between faculties also exist in the

96   behavioral and personal values communicated to students by staff members in those faculties [1, 9].

97   Even misperceptions of the social norms exist in these staff members, which might also affect e.g.,

98   attitudes towards campaigns or policies [10]. Such factors contribute to whether an environment is

99   more permissive or more restrained towards alcohol, which affects how students perceive norms

100   and affects their drinking behavior [19, 20]. However, to our knowledge, only a handful of European

101   studies investigated differences in alcohol use between faculties [27-29], while insights into this

102   matter are important to develop interventions that focus both on personal determinants and

103   environmental factors and structures.

104   As a first aim, this study wants to investigate the variance in frequent binge drinking at faculty-level,

105   in all faculties of a large Flemish (northern Belgium) university. We expect to find such variance,

106   because drinking behavior is found to vary between faculties [27, 28]. As a second aim, this study will

107   investigate the differential relationship of individual- and faculty-level factors with frequent binge

108   drinking in different faculties, through multilevel analyses differentiated by sex. We expect to find a

109   compositional effect of socio-demographical factors and personal determinants (i.e., perceived

110   norms and social drinking motives) [1, 9, 24], and a relation with the average student-perceived norm

111   at faculty-level. This latter variable serves as a proxy for the environmental factors of a faculty that

112   collectively influence the perceived norms of students in that faculty [20].

2. MATERIAL AND METHODS

2.1. Participants and recruitment

Participants consisted of 7,181 students (a response rate of 22.0%) from a large Belgian university, who anonymously responded to an email-invited online survey on substance use. The invitation contained a link to the survey and was sent to the official university email addresses by the vice-chancellor. No reminders were sent, but to raise the response rate, participants could voluntarily enter a lottery. This cross-sectional survey ran from mid-March 2013 until end-April 2013 and was approved by the ethics committee of the Ghent University Hospital.

2.2. Materials and measurements

2.2.1. Demographics

Questions include the assessment of sex, age, living status (i.e., with their parents, at a student apartment, on their own), fraternity/sorority membership (i.e., yes/no), faculty (i.e., Arts and Philosophy, Law, Sciences, Medicine and Health Sciences, Engineering and Architecture, Economics and Business Administration, Veterinary Medicine, Psychology and Educational Sciences, Bioscience Engineering, Pharmaceutical Sciences, and Political and Social Sciences) and program (i.e., bachelor or master).

2.2.2. Binge drinking

Binge drinking was assessed by the question 'How frequently do you drink four or more drinks (for women) or six or more drinks (for men) within a two hours period?'. This question is based on the National Institute on Alcohol Abuse and Alcoholism (NIAAA) standard on binge drinking, adjusted to the Belgian context where a standard drink contains 10 grams of alcohol instead of 14 grams like in the USA [31]. Five answering categories were given: never, less than monthly, monthly, weekly,

135   daily/almost daily. Answers were dummy coded to 'less than monthly' (coded zero) and 'monthly or

136   more' (coded one). This recoding was done to identify a pattern of regular binge drinking.

2.2.3. Perceived binge drinking norm

138   Perceived binge drinking norm was measured by the questions 'How frequently do you think a

139   regular male student drinks six or more alcoholic consumptions within a two hours period?' and

140   'How frequently do you think a regular female student drinks four or more alcoholic drinks in a two

141   hour period?'. For both questions the same five answering categories as for binge drinking were

142   given. Based on these questions and the participants' sex, two new variables were created that

143   describe same-sex and opposite-sex individual-level perceived binge drinking norm, respectively.

144   These latter variables were used in the analyses. For the average student-perceived binge drinking

145   norms at faculty-level, separate mean scores for these individual-level variables (i.e., same-sex

146   perceived binge drinking norm, and opposite-sex perceived binge drinking norm) were calculated for

147   each level-2 unit (i.e., faculties). Bachelor (i.e., first three years of university) and master (i.e., final

148   year(s) of university) degree students of the same faculty were seen as two distinct level-2 units,

149   because of differences in terms of e.g., study program, maturity, social context. In total 22 level-2

150   units (11 faculties x 2 programs) with an average of 327 students per unit (SD=182, min=72,

151   max=712) were distinguished.

2.2.4. Social drinking motives

153   Social drinking motives were assessed with the Drinking Motivation Questionnaire-Revised Short

154   Form (DMQ-R SF) social motives subscale [32]. This subscale consists of three items about the past-

155   year frequency of different social drinking motives: 'to make gatherings more fun', 'to help you enjoy

156   a party', and 'to improve parties and celebrations'. Each item was rated on a five-point Likert scale,

157   ranging from 'never/almost never' (coded zero) to 'almost always/always' (coded four). A mean

158   social drinking motives score was calculated (Cronbach's alpha = 0.90). A comparable internal

159   consistency was found in other large cross-national studies [33, 34].

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2.3. Statistical analyses

Descriptive statistics, which compared males and females, were performed using chi-squared and independent-sample-t tests.

Given the nested structure of the data (i.e., students in faculties) we performed multilevel regression analysis [35]. Students were defined as level-1 units and faculties, divided in bachelor and master students, as level-2 units. For the first aim, an intercept-only model without predictors was estimated to investigate the variance in regular binge drinking at faculty-level. For the second aim, socio-demographic variables (i.e., age, living status, fraternity/sorority membership) and social drinking motives were added in model 2, and individual-level perceived binge drinking norms were added in model 3. For this third model, effects of same-sex and opposite-sex individual-level perceived binge drinking norm were separately estimated (in model 3a and 3b, respectively), because of multicollinearity between these variables. In a fourth model student-perceived binge drinking norms at faculty-level were added. For this fourth model, effects of same-sex and opposite-sex perceived binge drinking norms at faculty-level were also separately estimated (in model 4a and 4b, respectively), also because of multicollinearity between these variables. All analyses were performed separately for male and female students, because students are mainly influenced by sex-specific norms and differently perceive norms according to sex [12-14]. The variance partition coefficient (VPC) was calculated with the formula $\sigma^2_{uo}/(\sigma^2_{uo}+\pi^2/3)$, in which σ^2_{uo} is the variance of the faculty-level error (u_{0j}) and $\pi^2/3$ equals the variance of a logistic distribution (i.e., the individual-level error (e_{ij}) distribution under a link function) [36]. Cross-level interactions were investigated. Abstainers were included in the analyses, because of their presence in the social environment investigated in this study and because they also perceive binge drinking norms without affecting their drinking behavior.

Bayesian inference was used to estimate all parameters, because this method is less biased compared to quasi-likelihood methods in logistic multilevel analyses [37, 38]. All estimations were

185 done with Markov-Chain-Monte-Carlo (MCMC) simulations in MLwiN 2.31 [39]. Therefore,

186 Metropolis-Hasting sampling was used with non-informative prior distributions (set by the iterative-

187 generalized-least-squares (IGLS) algorithm), because little was known about the model parameters in

188 advance. The required MCMC chain-length for convergence after a burn-in of 5000 simulations was

189 monitored by the Raftery-Lewis diagnostic. Model estimates in the tables are presented as log odds

190 and are converted to odds ratios (OR) with a 95% credible interval (CI) when discussed in the text.

191 Model fit was tested with the Deviance Information Criterion (DIC), with lower values indicating

192 better fit.

3. RESULTS

Descriptive statistics in Table 1 show no differences in age between males and females (mean=21.06 years). Significant differences were found for the dependent variable, with more males (39.9%) being involved in monthly binge drinking than females (20.9%). For the independent variables significant differences in sex were also found. Slightly more females live in student apartments (58% versus 56.8%) or on their own (12.8% versus 10.9%), while males more often are member of a fraternity/sorority (49.9% versus 34.2%) and drink more often for social motives.

The null model (model 1) in males shows a faculty-level variance of 0.156 (SE=0.071), with a VPC of 0.045 which indicates that 4.5% of the variance in binge drinking in males can be explained by differences in faculties (Table 2). DIC statistic also shows better fit for a 2-level-structured model (DIC=3378.552) compared to a single-level model (DIC=3436.762). This difference confirms multilevel analyses for males. For females no significant faculty-level variance was found (σ^2_{uo}=0.067; SE=0.037), which means that none of the variance in binge drinking in females can be explained on faculty-level (Table 3). However, DIC statistic shows better fit for a 2-level-structured model compared to a single-level model, with DIC being respectively 4380.767 and 4405.529. Therefore, the nested structure of the female data will also be taken into account in further analyses. Model 2 in Tables 2 and 3 presents the model with socio-demographic variables and social drinking motives added for male and female students, respectively. In both sexes DIC statistic decreased after adding these variables, which indicates improved model fit. In males students, faculty-level variance became non-significant when the socio-demographic variables and social drinking motives were added to model 2.

For male students, models 3a and 3b show that respectively the same-sex individual-level perceived binge drinking norm and the opposite-sex individual-level perceived binge drinking norm significantly predict monthly binge drinking (Table 2). The higher male students perceived peer males (OR=2.111; 95%CI=[1.862,2.393]) and females (OR=1.826; 95%CI=[1.620,2.058]) perform in binge drinking, the

10

218   higher the odds for monthly binge drinking. When faculty-level variables were added in models 4a

219   and 4b, a significant association was only found for same-sex student-perceived binge drinking norms

220   at faculty-level (Table 2). The higher student-perceived binge drinking norm at faculty-level about

221   males, the higher the odds for monthly binge drinking (OR=2.581; 95%CI=[1.023,6.509]). In both

222   series of analyses (model 2->3a->4a, and model 2->3b->4b), DIC statistic decreased with addition of

223   the individual-level perceived norms and the student-perceived binge drinking norm at faculty-level,

224   which shows improved model fit (Table 2). For female students, only the individual-level same- and

225   opposite-sex perceived binge drinking norm was found being significant. Beliefs about peer males'

226   and females' binge drinking resulted in higher odds for monthly binge drinking (OR=2.034;

227   95%CI=[1.819,2.274] and OR=1.865, 95%CI=[1.667,2.085], respectively) (model 3a and 3b, Table 3).

228   DIC statistics only decreased when the 'individual-level perceived binge drinking norm' was added to

229   both series of analyses (Table 3). Both in males and females, no cross-level interactions were found.

230

4. DISCUSSION

This study aimed to investigate the variance in frequent binge drinking at faculty-level in a large Belgian university and to investigate the relationship between individual- and faculty-level factors, and frequent binge drinking. In males, 4.5% of the variance in frequent binge drinking could be ascribed to differences between faculties. These differences were due to compositional differences between faculties, although a significant relationship was found between student-perceived binge drinking norms about males at faculty-level, and frequent binge drinking in males. In females, no significant level-2 variance and no effect of student-perceived binge drinking norms at faculty-level was found.

Consistent with former research, this study found differences in monthly binge drinking behavior between faculties [27, 28]. These differences were only found in men, which is in line with other research that found a larger variation in drinking between faculties in men compared to women [27]. Differences between faculties were mainly caused by a composition effect, since level-2 variance became non-significant when individual-level variables were added. The added individual-level variables are known predictors of alcohol use in higher education and were found to vary between faculties [1, 29]. This phenomenon may be related to differences in student intake and drinking habits in different faculties [30, 40]. The relationship found with social drinking motives is consistent with another Belgian study in higher education, that also found a positive relation with monthly binge drinking [26]. For individual-level perceived norms positive relationships were found for same- and opposite-sex, both in males and females, which is conform other research [14].

Besides these individual influences, this study found an additional relationship in men with same-sex student-perceived binge drinking norms at faculty-level. In those faculties with higher average perceived norms, men had higher odds for monthly binge drinking. Faculty-level influences on binge drinking were previously reported by Lorant and Nicaise, who found that social networks could be different in different faculties, which was related to binge drinking and the diffusion of norms in

256 these faculties [29]. Differences between faculties also exist in how faculty staff members behave

257 and communicate personal values, and how they perceive norms about drinking [1, 9, 10]. Our

258 results are consistent with these studies by showing that faculties as environmental structure relate

259 to regular binge drinking, independent from individual factors. However, further research is needed

260 to reveal the exact environmental characteristics of faculties that influence perceived norms and

261 drinking behavior of individuals studying within these faculties.

262 This study only found a significant association of same-sex student-perceived binge drinking norms at

263 faculty-level in men. This sole effect of same-sex norms is not surprising, since same-sex peers are

264 often an important source for the perception of norms about drinking [12-14]. In female students no

265 such relationship was found. Previous research has been noted that the relationship between sex

266 and social drinking norms can vary by setting and country. In the USA, for example, female students

267 were observed to have greater misperceptions of peer alcohol use than male students, which has

268 been argued to be a result of females visualizing the behavior of males when asked to imagine a

269 'typical' student [41], while research in Europe has failed to find such sex-effects on norm

270 perceptions [42]. Further research is needed to explain why no relationship with faculty-level

271 determinants was found in females. However, individual-level binge drinking norms in female

272 students were significant predictors, which is consistent with other research [12].

273 In the current study evidence was found that student-perceived binge drinking norms at faculty-level

274 relates to monthly binge drinking in men. This relationship was found to be additional to individual

275 predictors and confirms the importance of the socio-ecological approach that targets both individual-

276 and environmental-level predictors. In this study individual-level determinants were shown to

277 explain all variance at faculty-level, which suggests that in some faculties students at risk cluster

278 together. Based on this result, faculties are an interesting vehicle to focus the individual-based

279 section of an intervention (e.g., by focusing on students in specific faculties when targeting

280 individual-level determinants). At environmental-level, our results further suggest that university-

281   broad strategies can be used, since the found environmental effects did not explain variance at

282   faculty-level. Such university-broad interventions relates to the concept of the Health Promoting

283   University, which has been endorsed by the World Health Organization [43]. This approach argues

284   that educational institutions are ideally suited for health prevention and interventions, as they

285   consist of large populations; help develop professionals and leaders of the future and can set an

286   example to local communities. Effective examples of environmental strategies that influence drinking

287   behavior and norms are given in the 'Study to Prevent Alcohol Related Consequences' (SPARC)

288   intervention [20, 44]. This intervention implemented policies that, e.g., restricted on-campus alcohol

289   paraphernalia, banned the distribution of alcohol flyers, clarified a student code of conduct, adopted

290   dual judicial policies to address off-campus behavior, increased sanction for alcohol violation and

291   provided benefits for students in good standing [44].

292   Despite the strengths of this study, such as the large variety of students that represents all faculties

293   of a large Belgian university, and the use of a multilevel approach that controlled for important

294   individual determinants and takes into account the nested structure of students within faculties,

295   some limitations need to be mentioned. In this study perceived norms were assessed with a one-

296   item instrument per sex and with a more general reference group. A multi-item assessment and a

297   more specific reference group could enhance accuracy of the results. However, the perceived norm

298   questions in this study differentiated by sex, which already contributes to the accuracy of the results

299   [12]. This study found an association with student-perceived binge drinking norms at faculty-level,

300   but provides no information on how these norms arise. Future research should investigate which

301   environmental factors are of influence, because such information is relevant for future intervention

302   development. This study was open for all students, who could freely participate, which might affect

303   the generalization of the results. However, incentives were given to increase response, and a high

304   number of students from a wide variety of academic disciplines in a large university were recruited.

305   Due to the cross-sectional design we are not able to draw conclusions on causality. Finally, results

306   might be underestimated, because of the self-reported nature of this study that can lead to socially

307   desirable answering.

308   **5. CONCLUSIONS**

309   Frequent binge drinking in higher education relates to both personal determinants and

310   environmental factors. These environmental factors were especially found in men, who were

311   affected by same-sex student-perceived drinking norms at faculty-level. This study stresses the

312   relevance of faculties as an environmental structure and network, and the importance of

313   interventions that target both the individual and the environment.

6. TABLES

Table 1: Descriptive statistics with differences between sex

Variable	Student		Statistics (df)
	Male (n = 2711)	Female (n = 4470)	
Age (mean (SD)) / missings	21.04 (3.00) / 0	21.09 (2.69) / 0	t = -0.784 (5239.851)
Living status (missings)	(30)	(47)	χ² = 10.765 (2)**
With parents	32.4%	29.3%	
Student apartment	56.8%	58.0%	
On their own	10.9%	12.8%	
Fraternity/sorority (missings)	(373)	(415)	χ² = 152.747 (1)***
Being no member	50.1%	65.8%	
Being member	49.9%	34.2%	
Binge drinking Frequency (missings)	(158)	(177)	χ² = 286.546 (1)***
< Monthly	60.1%	79.1%	
≥ Monthly	39.9%	20.9%	
Social drinking motives: range: 0-4[a] (mean (SD)) / missings	2.01 (1.16) / 486	1.41 (1.06) / 630	t = 19.947 (4330.117)***
Perceived binge drinking norm: range: 1-5[b]			
About same sex (mean (SD)) / missings	3.68 (0.90) / 342	3.63 (0.88) / 360	t = 2.107 (6477)*
About opposite sex (mean (SD)) / missings	3.46 (0.91) / 342	3.83 (0.89) / 366	t = -16.063 (4832.789)***

*p < 0.05; **p < 0.01; ***p < 0.001; a 0='never/almost never' to 4='almost always/always'; b 1='never' to 5='daily or almost daily'

Table 2: Fixed and random parameters of the multilevel monthly binge drinking models in male students

MALE STUDENTS (n=2711)	Model 1 b	Model 1 SE	Model 2 b	Model 2 SE	Model 3a b	Model 3a SE	Model 4a b	Model 4a SE	Model 3b b	Model 3b SE	Model 4b b	Model 4b SE
Fixed parameters												
Constant	-0.394	(0.098)*	-0.765	(0.125)*	-0,823	(0.117)*	-0.862	(0.117)*	-0.813	(0.121)*	-0.839	(0.119)*
Individual level												
Socio-demographics												
Age			-0.083	(0.027)*	-0.092	(0.026)*	-0.092	(0.026)*	-0.087	(0.026)*	-0.087	(0.026)*
Living status[a]												
Student apartment			0.679	(0.117)*	0.673	(0.120)*	0.680	(0.121)*	0.679	(0.120)*	0.684	(0.119)*
On their own			0.446	(0.217)*	0.470	(0.223)*	0.481	(0.226)*	0.441	(0.222)	0.432	(0.222)
Fraternity/sorority[b]												
Being member			-0.152	(0.108)	-0.136	(0.110)	-0.086	(0.112)	-0.123	(0.109)	-0.094	(0.111)
Social drinking motives			0.922	(0.050)*	0.915	(0.052)*	0.909	(0.053)*	0.931	(0.052)*	0.927	(0.052)*
Perceived binge drink norm												
About same sex					0.747	(0.064)*	0.731	(0.064)*				
About opposite sex									0.602	(0.061)*	0.594	(0.061)*
Faculty level												
Aggregated perceived binge drink norm												
About same sex							0.948	(0.472)*				
About opposite sex											0.577	(0.406)
Random parameters												
σ^2_{u0} (Faculty)	0.156	(0.071)*	0.081	(0.058)	0.032	(0.035)	0.025	(0.030)	0.051	(0.048)	0.042	(0.043)
DIC	3378.552		2366.744		2219.406		2217.135		2265.048		2264.857	

a: reference category = with parents; b: reference category = being no member; SE: standard error; b: log odds; *p < 0.05

Table 3: Fixed and random paremeters of the multilevel monthly binge drinking models in female students

FEMALE STUDENTS (n=4470)	Model 1 b	Model 1 SE	Model 2 b	Model 2 SE	Model 3a b	Model 3a SE	Model 4a b	Model 4a SE	Model 3b b	Model 3b SE	Model 4b b	Model 4b SE
Fixed parameters												
Constant	-1.338	(0.072)*	-1.969	(0.106)*	-2.124	(0.110)*	-2,130	(0.109)*	-2.101	(0.112)*	-2.095	(0.108)*
Individual level												
Socio-demographics												
Age			-0.068	(0.025)*	-0.084	(0.025)*	-0.084	(0.025)*	-0.086	(0.026)*	-0.085	(0.025)*
Living status[a]												
Student apartment			0.543	(0.109)*	0.535	(0.113)*	0.535	(0.112)*	0.534	(0.113)*	0.531	(0.110)*
On their own			0.242	(0.184)	0.312	(0.191)	0.316	(0.188)	0.324	(0.190)	0.318	(0.187)
Fraternity/sorority[b]												
Being member			0.205	(0.094)*	0.269	(0.097)*	0.274	(0.097)*	0.254	(0.095)*	0.251	(0.097)*
Social drinking motives			0.908	(0.106)*	0.889	(0.044)*	0.891	(0.045)*	0.889	(0.044)*	0.889	(0.044)*
Perceived binge drink norm												
About same sex					0.710	(0.057)*	0.709	(0,057)*				
About opposite sex									0.623	(0.057)*	0.625	(0.058)*
Faculty level												
Aggregated perceived binge drink norm												
About same sex							0.130	(0.443)				
About opposite sex											-0.025	(0.395)
Random parameters												
σ^2_{u0} (Faculty)	0.067	(0.037)	0.010	(0.013)	0.009	(0.011)	0.010	(0.012)	0.010	(0.013)	0.011	0.014
DIC	4380.767		3266.182		3092.497		3094.181		3128.623		3130.650	

a: reference category = with parents; b: reference category = being no member; SE: standard error; b: log odds; *p < 0.05

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